UNITED STATES DEPARTMENT OF COMMERCE
OFFICE OF TECHNICAL SERVICES

BIBLIOGRAPHY
OF SCIENTIFIC AND INDUSTRIAL REPORTS

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* Indicates that reports in the BIOS, CIOS and FIAT series are deposited in the Library of Congress Depository Libraries. For a complete list of these libraries, see page facing page 1, volume 5, of this Bibliography.

In addition to the indexes described on the back cover of this Bibliography, the following reference works are available from the Office of Technical Services:

PB L 86000. BLACKBURN, ARLENE and others. FIAT reports: Bibliography and index of reports resulting from American investigations of German industry. Jan 1948. 95 p. Price: $5.00

PB L 87782. HOLLOWAY, O. WILLARD. American and British atomic energy reports: A list of reports on atomic energy released by the Office of Technical Services. Feb 1948. 30 p. Price: 75¢

PB L 58101-R. SWIFT, GRACE. Government document series, analyzed by Office of Technical Services, rev. Nov 1947. 45 p. Price: 25¢

PB L 79322. SWIFT, GRACE and ORNE, JERROLD. Subject headings for technical libraries. Jun 1947. 167 p. Price: $1.50

The paging and pricing of PB 63281, v. 5, p. 775, "Phthalic anhydride drawings: (h) S 5406b-4; (i) S 3182c-1; (j) S3451-2; (k) S 5969-2; (l) 10 590/1," by I. G. Farbenindustrie, should be changed to read as follows: 5 pages; Price: Microfilm-$1.00 - Photostat-$1.50

The translation of PB 52002 (Frames 35-46), v. 6, p. 1047, "First meeting of the cooperative group for synthetic resin acids and synthetic drying oils, Feb. 16, 1940," by the Consultants Bureau will be sold by that organization for $7.50.

The entry for PB L 52025, v. 7, p. 677 and 709, "Reichsberichte für chemie July 1944. First meeting of the cooperative group on asbestos, Dec. 11 and 12, 1942" is corrected to read: 147 pages; Price: Microfilm-$3.00 - Photostat-$10.00.

CHEMICALS AND ALLIED PRODUCTS

Drugs and Pharmaceuticals

PB L 74788. I. G. FARBENINDUSTRIE A. G. Reports on pharmaceutical preparations. (FIAT Microfilm Reel M 93, Frames 2806-3811) 1938-1944. 906 f. Price: Microfilm-$6.00 - Enlargement print-$91.00

This FIAT microfilm reel contains 56 research reports concerning the production of pharmaceutical preparations chiefly in the field of hormones. Individual items are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please give PB and frame numbers when ordering individual items from this microfilm reel. The reports date from 1938-1944. In German.

Frames	Title	Price
2806 PB L 74788	Recrystallising 7-hydroxycholesterol dibenzoate by means of acetone as solvent. In German.	$1.50
2807-2808 PB L 74788	7-Ketocholesterol acetate. In German.	1.50
2809-2821 PB L 74788	On campolon. In German.	1.50
2822-2827 PB L 74788	Compounds which produce estrus. In German.	1.50
2828-2836 PB L 74788	Annual report concerning the production of various new pharmaceutical preparations (1938). In German.	1.50
2837-2840 PB L 74788	Annual report for 1939 concerning new test preparations, commercial preparations, and laboratory preparations. In German.	1.50
2841-2844 PB L 74788	Production of water-soluble saturated and unsaturated sulfoketo-cholic acids. Tooth paste. "Ventraferron." In German.	1.50
2845-2850 PB L 74788	Cardiac action of "Ketoxysterols." Laxatives. Ferro salt. "Belvitan T" paste. "B Campolon." "Sulfocholic Acids." "Unden." In German.	1.50
2851-2853 PB L 74788	Curative effect of testicular hormones in experimentally produced inguinal hernias. In German.	1.50
2854-2857 PB L 74788	Testing of preparations by new biological methods. In German.	1.50
2858-2859 PB L 74788	Drug testing by means of animal experimentation. In German.	1.50
2860-2866 PB L 74788	"Cyren A," production and synthetic methods. In German.	1.50
2867-2893 PB L 74788	"Narkogen," "Unden," "Neo-Stibosan," "Cyren," Vitamin B_1. In German.	3.00
2894-2905 PB L 74788	Cyren, "Pardinon," "Prostaglandin"; and other hormonal preparations. In German.	1.50
2906-2912 PB L 74788	Prolan, "Vaduril" (produced from tooth enlage), and other organic preparations with hormonal action. In German.	1.50
2913-2927 PB L 74788	Vasodepressant substances; "Manetol"; products of blood digestion; bone extracts. In German.	1.50
2928-2933 PB L 74788	Hormonal preparations from thymus; skin extracts; bone extracts. In German.	1.50
2934-2940 PB L 74788	Synthetic estrogens. Vitamin B_6. In German.	1.50
2941-2943 PB L 74788	Experiments for the testing of campolon. In German.	1.50
2944-2951 PB L 74788	Colorimetric measurements on campolon. Inhaling fresh campolon. In German.	1.50
2952-2965 PB L 74788	Various competition products. Development of analytical methods for testing the latter. In German.	1.50
2966-2968 PB L 74788	Report on synthetic estrogenic substances. In German.	1.50
2969-2972 PB L 74788	Substances influencing the coagulation of the blood, obtained from liver. A. T. 10. "Tachysterin." In German.	1.50
2973-2983 PB L 74788	Testing of anti-anemia preparations such as "Ventraferron" and others. In German.	1.50
2984-2994 PB L 74788	Detection of sugar in padutin and characterization of the sugar as glycoprotein. In German.	1.50
2995-2998 PB L 74788	Production of campolon preparations from ox-bile. Preparation and testing of "Mucinase." On the diminution of virulence by "Anti-Mucinase." In German.	1.50
2999-3002 PB L 74788	On the action of creatinine and n-methylhydantoin in pernicious anemia. In German.	1.50
3003-3005 PB L 74788	The action of preparation "F. 4665" (4,4'-diaminostilbene) in leprosy. In German.	1.50
3006-3015 PB L 74788	"Eidoform" from yeast. Padutin from urine. In German.	1.50
3016-3022 PB L 74788	Growth inhibiting substances. In German.	1.50
3023-3025 PB L 74788	Substances that lower the blood pressure. In German.	1.50
3026-3031 PB L 74788	Liver extract, "Manetol," "Vaduril," and other organ extracts. In German.	1.50
3032-3038 PB L 74788	Emulsions obtained from the spinal cord of calves. Wool grease. Bone marrow extracts. In German.	1.50
3039-3057 PB L 74788	Attempts at obtaining the toxin of red squill. In German.	2.00
3058-3070 PB L 74788	Examination of fats. Experiments with fats. In German.	1.50
3071-3079 PB L 74788	"Febrolon" (isooctyl acetylsalicylic acid). The active substance in the latex of Calotropis procera. In German.	1.50
3080-3111 PB L 74788	Padutin from pancreas. Padutin from urine. Vitamin B_1. Vitamin H. Various experiments with padutin. In German.	2.50
3112-3116 PB L 74788	Isolation of racemic leucin from the liver. In German.	1.50
3117-3148 PB L 74788	Self experiment with peroral padutin. Standardization of kallikrein from pancreas. Substance with emetic effect. In German.	3.50
3149-3158 PB L 74788	Vitamin H. Kallikrein. In German.	1.50
3159-3180 PB L 74788	Toxicology of some solvents used for medicinal purposes. In German.	2.50

3181-3183 PB L 74788	Processing of egg-yolk for obtaining biotin. In German.	1.50
3184-3190 PB L 74788	Annual report for 1938, concerning analytical methods for testing pharmaceutical preparations. In German.	1.50
3191-3205 PB L 74788	Potentiometric determination of phosphorus instead of the former gravimetric method. Other analytical methods developed in 1938. In German.	1.50
3206-3214 PB L 74788	Special analyses and developments (1940). In German.	1.50
3215-3247 PB L 74788	Analyses developed in 1941. In German.	3.50
3248-3250 PB L 74788	pH-determination in aqueous solutions of Zephirol. In German.	1.50
3251-3260 PB L 74788	Determination of acetopropyl benzoate in mixture with benzoic acid and benzoic anhydride. In German.	1.50
3261-3305 PB L 74788	Competition preparations (analysis and testing of). In German.	4.50
3306-3323 PB L 74788	Experiments carried out and planned with regard to the cancer problem. Optical activity of normal lipoids and lipoids from cancer patients. d-Glutamic acid in diseases other than cancer. Transition of sterols into cancer hydrocarbons. Theory of pyrolysis. Preparations for cancer experiments. Enzymic preparations for cancer experiments. d-Leucyl-l-tryptophan. Proteinase-inhibiting experiments. Silver preparations in cancer. In German.	2.00
3324-3336 PB L 74788	Research with regard to Abderhalden's cancer test. Testing of substances with cancer-inhibitory and cancerogenic action. In German.	1.50
3337-3351 PB L 74788	Influence of amino acids on the growth of tumors. Transmission of a cancerogenic factor through milk. Cancer experiments with the aid of plant substances. Effect of racemic dipeptides in malignant tumors. In German.	1.50
3351A-3355 PB L 74788	Investigations on the effect of d,l-alanylglycylglycin on benzopyrene cancer. Observations on spontaneous tumors. In German.	1.50
3356-3591 PB L 74788	Bactericides (including their chemical structure). Anti-pest agents. Disinfectants. In German.	14.00
3592-3648 PB L 74788	Insecticides. Anti-pest agents. In German.	6.00
3649-3802 PB L 74788	Antimalarial preparations. In German.	15.50
3803-3811 PB L 74788	Annual report for 1939 concerning remedies for tropical diseases, bronchopneumonia, and rheumatic fever. In German.	1.50

PB L 70176. I. G. FARBENINDUSTRIE A. G., HÖCHST, GERMANY. Urethane derivatives, miscellaneous chemicals and pharmaceuticals. (FIAT Microfilm Reel O 24, Frames 2931-3891) 1929-1945. 960 f. Price: Microfilm-$6.00 - Enlargement print-$96.00

Part of FIAT Microfilm Reel O 24, abstracted in this issue under "Plastics and Plasticizers," contains a number of reports (Frames 3351-3891) dealing with tests of synthetic pharmaceutical products. Most of the preparations are of no practical importance.

Dyes

PB L 74898. I. G. FARBENINDUSTRIE A. G. Reports on dyes and dye intermediates. (FIAT Microfilm Reel T 24, Frames 9310-10,000 and 1-9) 1936-1940. 710 f. Price: Microfilm-$6.00 - Enlargement print-$71.00

This FIAT microfilm reel contains 116 reports on research in the field of dyes and their intermediates, as well as on experiences in their production. Numerous progress reports describe continued research; they are not, however, arranged in chronological order. Individual reports will be available as enlargement prints. Please give PB and frame numbers when ordering. All reports are in German. Much of this reel is poorly legible and may not reproduce well.

Frames	Title	Price
9310-9311 PB L 74898	Progress report. By Mieg. Date illegible. In German. Thiazines and other dyes. Not very legible.	$1.50
9312-9317 PB L 74898	Progress report. By Bienert. 1936. In German. Various dyes and intermediates. Poorly legible.	1.50
9318-9320 PB L 74898	"Indanthren-Olivgrün B" derivatives. 1936. In German. Poorly legible.	1.50
9321-9326 PB L 74898	Progress report. By Bienert. 1936. In German. Various dyes. Poorly legible.	1.50
9327-9329 PB L 74898	Progress report. By Mieg. 1936. In German. Chiefly thiazines. Poorly legible.	1.50
9330-9332 PB L 74898	Progress report. By Raab. 1936. In German. o-Dicyano compounds; azo dyes. Not very legible.	1.50
9333-9338 PB L 74898	Collective report Weinand-Bamberger. 1936. In German. Various dyes. Almost illegible.	1.50
9339-9342 PB L 74898	Monthly reports. By Trautner. 1936. In German. Various intermediates and dyes. Poorly legible.	1.50
9343 PB L 74898	This frame does not exist.	
9344-9352 PB L 74898	Abstracts of scientific reports of the Azo-Department. 1936. In German.	1.50
9353-9357 PB L 74898	Progress report. By Mieg. 1936. In German. Indigosol analogues, wool dyes, etc. Not very legible.	1.50
9358-9369 PB L 74898	Progress report. By Berthold. 1936. In German. "Suprafix" pastes; spinning dyeings; lacquers; dispersions. Poorly legible.	1.50
9370-9372 PB L 74898	Progress report. By Bienert. 1936. In German. "Heliogen" dyes and other observations. Poorly legible.	1.50
9373-9381 PB L 74898	Collective report Weinand-Bamberger. 1936. In German. "Supraminblau" series, substantive dyes, intermediates. Poorly legible.	1.50
9382-9396 PB L 74898	Collective report Baumann-Schwechten. 1936. In German. Vat dye research. Poorly legible.	1.50

Dyes (contd)

9397-9401 PB L 74898 — Progress report. By Raab. 1936. In German. Various dyes. Poorly legible. 1.50

9402-9405 PB L 74898 — Progress report. By Wieners. 1936. In German. Various dyes. Poorly legible. 1.50

9406-9407 PB L 74898 — A peri-naphthindone-carbazole. By Burneleit. 1936. In German. Poorly legible. 1.50

9408-9409 PB L 74898 — New wool vat dyes of the anthraquinone series. By Raab. 1936. In German. 1.50

9410-9412 PB L 74898 — Monthly reports. By Bähr. 1936. In German. Indanthrene dyes. Poorly legible. 1.50

9413-9427 PB L 74898 — Collective report Weinand-Bamberger. 1936. In German. Various dyes. Poorly legible. 1.50

9428-9435 PB L 74898 — Collective report Schwechten-Baumann. 1936. In German. Various dyes. Poorly legible. 1.50

9436-9442 PB L 74898 — Monophthoylcarbazoles and their sulfonic acids. By Wieners. 1936. In German. Not very legible. 1.50

9443-9449 PB L 74898 — T. D. Büro reports. 1936. In German. A number of short items; poorly legible. 1.50

9450-9455 PB L 74898 — Progress report. By Mieg. 1936. In German. Various intermediates. Poorly legible. 1.50

9456-9461 PB L 74898 — Progress report. By Berthold. 1936. In German. Vat dyes. Poorly legible. 1.50

9462-9471 PB L 74898 — Progress report. By Wieners. 1936. In German. Various dyes. Poorly legible. 1.50

9472-9480 PB L 74898 — Progress report. By Bienert. 1936. In German. Various dyes and intermediates. Poorly legible. 1.50

9481-9489 PB L 74898 — T. D. Büro reports. n. d. In German. A number of small items on dyes and intermediates. Not very legible. 1.50

9490-9495 PB L 74898 — Progress report. By Berthold. 1936. In German. Contains a list of dyes tested. Partly illegible. 1.50

9496-9497 PB L 74898 — A new oxazine dye. By Burneleit. 1936. In German. 1.50

9498-9507 PB L 74898 — Collective report Weinand-Bamberger. n. d. In German. Various intermediates and dyes. Not very legible. 1.50

9508-9511 PB L 74898 — Progress report. By Bienert. 1936. In German. Various intermediates and dyes. Not very legible. 1.50

9512-9520 PB L 74898 — Collective report Baumann-Schwechten. 1936. In German. Various dyes and intermediates. 1.50

9521-9524 PB L 74898 — Progress report. By Mieg. 1936. In German. Various intermediates. Not very legible. 1.50

9525-9527 PB L 74898 — Progress report. By Bähr. 1936. In German. Reactions with "Benzochlormethol II." 1.50

9528-9537 PB L 74898 — Collective report Baumann-Schwechten. 1936. In German. Various dyes and intermediates. Not very legible. 1.50

9538-9540 PB L 74898 — Progress report. By Wieners. 1936. In German. Carbazolizations, leuco esters of vat dyes, etc. Not very legible. 1.50

9541-9546 PB L 74898 — Progress report. By Bienert. 1936. In German. "Heliogen grün" dyes, various intermediates. Not very legible. 1.50

9547-9549 PB L 74898 — Progress report. By Bähr. 1936. In German. Anthraquinone-acyl products, etc. Not very legible. 1.50

9550-9552 PB L 74898 — Progress report. By Job. 1936. In German. Miscellaneous results in short. 1.50

9553-9560 PB L 74898 — Collective report Weinand-Bamberger. 1936. In German. Various dyes. Poorly legible. 1.50

9561-9562 PB L 74898 — Progress report. By Burneleit. 1936. In German. Oxazine and thiazine compounds. 1.50

9563-9566 PB L 74898 — Production of highly concentrated dye pastes. By Berthold. 1936. In German. Poorly legible. 1.50

9567-9570 PB L 74898 — Progress report. By Mieg. 1936. In German. Various intermediates. Poorly legible. 1.50

9571-9573 PB L 74898 — Phthalocyanines of the pyridinium series. By Bienert. 1937. In German. Poorly legible. 1.50

9574-9582 PB L 74898 — Simultaneously spun and dyed viscose. By Berthold. 1937. In German. 1.50

9583-9587 PB L 74898 — Progress report. By Bienert. 1937. In German. Heliogen dyes, etc. 1.50

9588-9590 PB L 74898 — Progress report. By Mieg. 1937. In German. Aluminum chloride melts for carbazolization, anthraquinone derivatives, etc. Not very legible. 1.50

9591-9596 PB L 74898 — Collective report Weinand-Bamberger. 1937. In German. Anthraquinone dyes. Poorly legible. 1.50

9597-9606 PB L 74898 — Carbazolization by means of aluminum-chloride-double compounds. By Wieners. 1937. In German. Not very legible. 1.50

9607-9614 PB L 74898 — Collective report Baumann-Schwechten. 1937. In German. Various dyes and intermediates. Poorly legible. 1.50

9615-9619 PB L 74898 — Vat dyes. By Raab. 1937. In German. 1.50

9620-9623 PB L 74898 — Collective report Weinand-Bamberger. 1937. In German. Purpurine-carboxylic acid. 1.50

9624-9627 PB L 74898 — Substituted naphthoquinone-carbazoles. By Burneleit. 1937. In German. 1.50

9628-9636 PB L 74898 — Listing of numerous results by various investigators in 1937. In German. 1.50

9637-9638 PB L 74898 — Monthly report. By Bähr. 1937. In German. New vat dyes; unsatisfactory. 1.50

Dyes (contd)

9639-9644 PB L 74898 — Collective report Weinand-Bamberger. 1937. In German. Anthraquinone dyes. 1.50

9645-9653 PB L 74898 — Collective report Baumann-Schwechten. n. d. In German. Anthraquinone and quinoline dyes. Poorly legible. 1.50

9654-9660 PB L 74898 — Progress report. By Wieners. 1937. In German. Various dyes. 1.50

9661-9663 PB L 74898 — Monthly report. By Job. 1937. In German. Short statements on various results. 1.50

9664-9669 PB L 74898 — Progress report. By Berthold. 1937. In German. Various dyes. Poorly legible. 1.50

9670-9675 PB L 74898 — Progress report. By Raab. 1937. In German. Vat dyes, wool dyes, etc. Poorly legible. 1.50

9676-9677 PB L 74898 — Hydroxines of 1,2-naphthoquinone. By Burneleit. 1937. In German. 1.50

9678-9679 PB L 74898 — Monthly report. By Kieser. 1937. In German. Problems in intermediate production. 1.50

9680-9682 PB L 74898 — Monthly report. By Colombara. 1937. In German. Toluidine and "Leukamin" melts. 1.50

9683-9687 PB L 74898 — Progress report. By Mieg. 1937. In German. Indigenol analogues, anthraquinone derivatives. 1.50

9688-9694 PB L 74898 — Progress report. By Bienert. 1937. In German. Miscellaneous dye research. Not very legible. 1.50

9695-9709 PB L 74898 — Collective report Baumann-Schwechten. 1937. In German. Diazo-anthracenes, diazo-anthraquinones, diazo-naphthacenes, and diazo-phenanthrenes. Not very legible. 1.50

9710-9713 PB L 74898 — Collective report Weinand-Bamberger. 1937. In German. Miscellaneous dyes. 1.50

9714-9718 PB L 74898 — Electrochemical reduction of quinizarin to leucoquinizarin. By Raab. 1937. In German. 1.50

9719-9721 PB L 74898 — "Alizarin-Walkblau 189." By Weinand. 1937. In German. Not very legible. 1.50

9722-9728 PB L 74898 — Progress report. By Burneleit. 1937. In German. Naphthoquinone dyes and intermediates. 1.50

9729-9733 PB L 74898 — Progress report. By Mieg. 1937. In German. Aromatic sulfochloride sulfonic acid; aromatic polyhalogen compounds reacted with amino-anthraquinones. 1.50

9734-9738 PB L 74898 — Progress report. By Bienert. 1937. In German. Miscellaneous results. 1.50

9739-9744 PB L 74898 — Progress report. By Wieners. 1937. In German. Miscellaneous research. 1.50

9745-9746A PB L 74898 — Monthly report. By Weinhold. 1941. In German. Experiences with alizarin and indanthrene dyes. 1.50

9747-9749 PB L 74898 — Monthly report. By Berliner. 1941. In German. Various experiences and results. 1.50

9750-9758 PB L 74898 — Progress reports. By Bühr. 1940-1941. In German. Dye research; "Plastikator 77." 1.50

9759-9763 PB L 74898 — Monthly report. By Raab. 1941. In German. Miscellaneous results. 1.50

9764-9767 PB L 74898 — Monthly report. By Bühr. 1940. In German. Various research results. Not very legible. 1.50

9768-9777 PB L 74898 — Progress report. By Wieners. n. d. In German. Miscellaneous research. 1.50

9778-9792 PB L 74898 — Yearly report, 1940. By Bienert. In German. Miscellaneous research. 1.50

9793-9798 PB L 74898 — Progress report. By Baumann. 1941. In German. "Methyl base," "Leukamin," "Trimid." 1.50

9799-9802 PB L 74898 — Monthly report. By Berliner. 1940. In German. Various experiences. 1.50

9803-9809 PB L 74898 — Monthly reports. By Bühr. 1940. In German. Miscellaneous research. 1.50

9810-9811 PB L 74898 — Preparation of pure thiodiglycolic acid. By Schwechten. 1940. In German. 1.50

9812-9815 PB L 74898 — Progress report. By Bienert. 1940. In German. Copper-phthalocyanines. 1.50

9816-9820 PB L 74898 — Monthly report. By Raab. 1940. In German. Miscellaneous research. 1.50

9821-9824 PB L 74898 — Monthly report. By Job. 1940. In German. Various dyes. 1.50

9825-9832 PB L 74898 — "Naphthasol" and "Anthrasolorange IGG." By Wieners. n. d. In German. 1.50

9833-9835 PB L 74898 — Preliminary report on the preparation of anthraquinone in an organic solvent. By Berliner. 1940. In German. 1.50

9836-9838 PB L 74898 — Preparation of anthranyl-9-mercaptan. By Berliner. 1940. In German. 1.50

9839-9843 PB L 74898 — Monthly report. By Job. 1940. In German. Various experiences. 1.50

9844-9846 PB L 74898 — Monthly report. By Raab. 1940. In German. "Katanol O D" etc. 1.50

9847-9859 PB L 74898 — Progress report Baumann-Schwechten. 1940. In German. Oxidations with V_2O_5 and other research. 1.50

9860-9861 PB L 74898 — Progress report. By Burneleit. 1940. In German. Substitutes for pyridine. 1.50

9862-9869 PB L 74898 — Progress report. By Weinand. 1940. In German. Miscellaneous dye research. 1.50

9870-9871 PB L 74898 — Progress report. By Berliner. 1940. In German. Amino-oxazole derivatives. 1.50

Dyes (contd)

9872-9877 PB L 74898 — Progress report. By Bienert. 1940. In German. Anthraquinone and phthalocyanine dyes; experiments for producing saccharin. 1.50

9878-9886 PB L 74898 — Oxidations with vanadic acid. By Baumann and Schwechten. 1940. In German. 1.50

9887-9889 PB L 74898 — Monthly report. By Bähr. 1940. In German. Various experiences. 1.50

9890-9892 PB L 74898 — Continuous dry baking method. By Raab. 1940. In German. 1.50

9893-9894 PB L 74898 — "Alizarinblauschwarz" from quinizarin. By Raab. 1940. In German. 1.50

9895-9899 PB L 74898 — Monthly report. By Bähr. 1939. In German. "Monadon" and other results. 1.50

9900-9905 PB L 74898 — Progress report. By Mieg. 1939. In German. Miscellaneous research. Partly poorly legible. 1.50

9906-9924 PB L 74898 — Progress report. By Baumann and Schwechten. 1939. In German. Vat dyes; "Cellitonechtblaugrün B." 2.00

9925-9931 PB L 74898 — New reactions in the series of diacridins and benzoylene-acridins. By Burneleit. 1939. In German. 1.50

9932-9948 PB L 74898 — Progress report. By Weinand. 1939. In German. Halogenation of arylamino-anthraquinones, etc. 1.50

9949-9961 PB L 74898 — Phthalocyanines. By Bienert and Thielert. 1939. In German. 1.50

9962-9966 PB L 74898 — Monthly report. By Hansen. 1939. In German. Various dyes. 1.50

9967-9969 PB L 74898 — Monthly report. By Bähr. 1939. In German. Various experiences. 1.50

9970-9981 PB L 74898 — Progress reports. By Weinand. 1939. In German. Halogenation of arylamino-anthraquinones, etc. 1.50

9982-9986 PB L 74898 — "Universal" pastes. By Berthold. 1939. In German. 1.50

9987-9996 PB L 74898 — Progress report. By Mieg. 1939. In German. Miscellaneous research. 1.50

9997-10000 1-2 PB L 74898 — Monthly report. By Hansen. 1939. In German. Miscellaneous dyes. 1.50

3-9 PB L 74898 — Abstracts of reports of the Alizarine Department. 1939. In German. 1.50

PB L 74914. I. G. FARBENINDUSTRIE A. G., LEVERKUSEN, GERMANY. Chemical laboratory and progress reports. (FIAT Microfilm Reel T 31, Frames 4451-5288) 1936-1944. 838 f. Price: Microfilm-$6.00 - Enlargement print-$84.00
This FIAT microfilm reel contains 101 reports on research in the field of dyes and dye intermediates. Individual reports, listed below, will be available as enlargement prints. Please include PB and frame numbers when ordering an individual item. These reports are in German.

Frames	Title	Price
4451-4457 PB L 74914	Hydrogenated hydroxybenzocarbazoles. By Morschel. n. d. In German.	$1.50
4458-4459 PB L 74914	5-Nitro-anthranilic acid esters as diazo components in Naphthol-AS dyeings. By Morschel. 1937. In German.	1.50
4460-4463 PB L 74914	"Azoldruckorange R" and similar dyes. By Modersohn. 1937. In German.	1.50
4464-4466 PB L 74914	Yellow pigment. By Schleifenbaum. 1937. In German.	1.50
4467-4474 PB L 74914	Tanning agents. By Bauer. 1937. In German.	1.50
4475-4477 PB L 74914	Stabilizer for "Rapidogen" dyes. By Meiser. 1937. In German.	1.50
4478-4480 PB L 74914	Azo dyes and intermediates. By Modersohn. 1937. In German.	1.50
4481-4487 PB L 74914	Peroxide-fast black combinations. By Morschel. 1937. In German.	1.50
4488-4490 PB L 74914	Continuous sulfonation of benzene to benzene monosulfonic acid. II. By Winkelmüller. 1937. In German. See below, Frames 4511-4514.	1.50
4491-4492 PB L 74914	Nitrosochlorides. By Morschel. 1937. In German.	1.50
4493-4496 PB L 74914	Agents for making materials fast to light. By Morschel. 1937. In German.	1.50
4497-4506 PB L 74914	Monthly reports, December 1936. By Meiser and Modersohn. In German. On various dyes and dye intermediates.	1.50
4507-4508 PB L 74914	Lacquers. By Schleifenbaum. 1936. In German.	1.50
4509-4510 PB L 74914	Pyrazolone derivatives. By Hartmann. 1936. In German.	1.50
4511-4514 PB L 74914	Continuous sulfonation of benzene to benzene monosulfonic acid. I. By Winkelmüller. 1936. In German.	1.50
4515-4516 PB L 74914	Tanning agent. By Bauer. 1936. In German.	1.50
4517-4524 PB L 74914	Short abstracts of scientific reports of the intermediate department. n. d. In German.	1.50
4525-4527 PB L 74914	Catalytic hydrogenation of several aromatic nitro-compounds. By Nordt. 1936. In German.	1.50
4528-4529 PB L 74914	The hydroxycyclohexyl group in coupling components. By Morschel. 1936. In German.	1.50
4530-4531 PB L 74914	The effect of chloral on polyalcohols. By Morschel. 1936. In German.	1.50
4532-4533 PB L 74914	Research in the carbazole series. 1936. In German.	1.50
4534-4538 PB L 74914	Various dyes. By Modersohn and Morschel. 1936. In German.	1.50
4539-4541 PB L 74914	Lacquers. By Schleifenbaum. 1936. In German.	1.50
4542-4554 PB L 74914	Monthly reports, October-November 1936 (on various dyes and intermediates). By Morschel and others. In German.	1.50
4555-4556 PB L 74914	Lacquers. By Schleifenbaum. 1936. In German.	1.50

Dyes (contd)

4557
PB L 74914 — Tanning agent. By Bauer. 1936. In German. 1.50

4558-4563
PB L 74914 — Pyrazolone derivatives. By Hartmann. 1936 In German. 1.50

4564-4565
PB L 74914 — Monthly report, August 1936. By Hartmann. 1936. In German. 1.50
Various dye intermediates.

4566-4567
PB L 74914 — Lacquers. By Schleifenbaum. 1936. In German. 1.50

4568-4580
PB L 74914 — Monthly reports, September 1936. By Modersohn and others. In German. 1.50
On various dyes and intermediates.

4581
PB L 74914 — Plasticizer for "Cellit." By Friedrich. 1936. In German. 1.50

4582-4587
PB L 74914 — "Organoorganz." By Modersohn. 1936. In German. 1.50

4588-4590
PB L 74914 — The effect of phenol on dextrose and cellulose. By Hertlein. 1936. In German. 1.50

4591-4593
PB L 74914 — These frames contain handwritten notes, which are illegible.

4594-4596
PB L 74914 — Isourea ethers. By Meiser. 1936. In German. 1.50

4597-4603
PB L 74914 — Monthly reports, August 1936. By Meiser and Modersohn. In German. 1.50
On various dyes and dye intermediates.

4604-4609
PB L 74914 — Reaction products of nitroso-chlorides of olefines. By Morschel. 1936. In German. 1.50

4610-4611
PB L 74914 — Aminothioacetanilide. By Morschel. 1936. In German. 1.50

4612
PB L 74914 — Diazosulfides of mercaptobenzo-thiazole. By Morschel. 1936. In German. 1.50

4613-4615
PB L 74914 — Diazonium-salts of "Echtbraun V" base. By Morschel. 1936. In German. 1.50

4616-4621
PB L 74914 — Monthly reports, August 1936. By Schleifenbaum and Meiser. In German. 1.50
Various dyes and intermediates.

4622-4624
PB L 74914 — Lacquers. By Schleifenbaum. 1936. In German. 1.50

4625-4628
PB L 74914 — Monthly reports, May-July 1936. By Hartmann. 1936. In German. 1.50
On various intermediates.

4629-4631
PB L 74914 — Wetting agents. By Friedrich. 1936. In German. 1.50

4632-4637
PB L 74914 — Tanning agents. By Bauer. 1936. In German. 1.50

4638-4648
PB L 74914 — Monthly reports, Jun 1936. By Goll and others. In German. 1.50
On various dyes and intermediates.

4649-4650
PB L 74914 — Tanning agents. By Bauer. 1936. In German. 1.50

4651-4666
PB L 74914 — Monthly reports, May 1936. By Goll and others. In German. 2.00
Phenol resins, textile aids, dyes, intermediates.

4667-4670
PB L 74914 — Chlorination and sulfonation of 2-aminobiphenyl. By Morschel. 1936. In German. 1.50

4671-4672
PB L 74914 — Monthly report, May 1936. By Schleifenbaum. In German. 1.50
Lacquers and printing pastes.

4673-4677
PB L 74914 — Short listing of the fields in which research was in progress. By Heelmeier. 1936. In German. 1.50

4678-4683
PB L 74914 — Diazonium solution of "Echtbraun V" base. By Ritter Wolff. 1936. In German. 1.50

4684-4687
PB L 74914 — Short abstracts of results of various research in progress. 1936. In German. 1.50

4688-4718
PB L 74914 — Monthly reports, April 1936. In German. 3.50
On various dyes, intermediates, "Permutit" resins, tanning agents.

4719-4724
PB L 74914 — Report on the year 1942. By Huber. 1943. In German. 1.50
Research on intermediates and plasticizers.

4725-4736
PB L 74914 — Progress report. By Schliemann. 1938. In German. 1.50
Describing various processes and changes in processes.

4737-4760
PB L 74914 — Progress reports. By Petzold and Schliemann. 1937. In German. 2.50
Chiefly on intermediates for dyes.

4761-4774
PB L 74914 — Reports No. 18 and 19. By Huber. 1936-1937. In German. 1.50
Dyes and intermediates.

4775-4783
PB L 74914 — These frames are duplication of report No. 18, above (Frames 4766-4774).

4784-4787
PB L 74914 — Progress report. By Petzold. 1936. In German. 1.50
On dye intermediates.

4788-4791
PB L 74914 — These frames are duplication of preceding item.

4792-4800
PB L 74914 — These frames are duplication of item following, which is more legible.

4801-4809
PB L 74914 — Progress report. By Schliemann. 1936. In German. 1.50
On dye intermediates.

4810-4812
PB L 74914 — Production of aminohydrocinnamo-nitriles. By Zervas and Suckfill. 1943. In German. 1.50

4813-4815
PB L 74914 — Aminohexanol. By Zervas and Suckfill. 1943. In German. 1.50

4816-4824
PB L 74914 — Polyamides. By Zervas and Suckfill. 1943. In German. 1.50

4825-4826
PB L 74914 — Production of "Formoss" solutions. By Roos. 1943. In German. 1.50

4827-4831
PB L 74914 — Aliphatic diisocyanates. By Fütter. 1942. In German. 1.50

4832-4837
PB L 74914 — Trimester reports 1st-4th trimester 1941. By Müller. In German. 1.50
A list of subjects of research without details.

4838-4843
PB L 74914 — Report Jan. 1-June 30, 1941. By Mans. In German. 1.50
On research on various dyes.

4844-4849
PB L 74914 — Trimester report 1st trimester 1941. By Roos. In German. 1.50
"Säurealizarinblaugrün L," "Siriuslichtbraun RRS," "Bukanolbrillant" dyes.

Dyes (contd)

4850-4857 PB L 74914 — Progress report. By Kamp. n. d. In German. 1.50
"Siriuslichtoliv GL," "Siriusgrün GT," m-cresol from m-toluidine.

4858-4865 PB L 74914 — Research in the field of photography. By Suckfüll. 1941. In German. 1.50
Blue components.

4866-4867 PB L 74914 — Dithiocarbamic acid derivatives. By Zervas. 1941. In German. 1.50

4868-4869 PB L 74914 — Thionaphthols. By Zervas. 1941. In German. 1.50

4870-4877 PB L 74914 — Progress report. By Manz. 1941. In German. 1.50
On various dyes. Not very legible.

4878-4905 PB L 74914 — Stilbene dyes. By Roos. 1940. In German. 3.00

4906-4915 PB L 74914 — Relation of aminoazo dyes to dinitrostilbene disulfonic acid in "Siriuslichtorange" dyes. By Roos. 1940. In German. 1.50

4916-4924 PB L 74914 — Neutral dyeing acid wool dyes. By Kamp. 1939. In German. 1.50

4925-4943 PB L 74914 — Yearly report of the Scientific Azo Department. 1940. In German. 1.50
Abstracts of results of various investigators.

4944-5005 PB L 74914 — Reports at the 15th Scientific Ako (Commission for Azo dyes). 1940. In German. 6.50

5006-5008 PB L 74914 — Quarterly report IV, 1939. By Manz. In German. 1.50
On azo dyes.

5009-5016 PB L 74914 — Progress report 2nd-4th quarter, 1939. By Schrum. In German. 1.50
Mainly on intermediates.

5017-5018 PB L 74914 — Quarterly report III, 1939. By Manz. In German. 1.50
Almost illegible.

5019-5028 PB L 74914 — Half-year report, 1939. By Kamp. In German. 1.50
Azo dyes and intermediates.

5029-5043 PB L 74914 — Quarterly reports I and II, 1939. By Manz. In German. 1.50
Azo dyes and intermediates.

5044-5050 PB L 74914 — Progress report. By Schrum. n. d. In German. 1.50
Research on p-sulfanilic acid amide, "Amidoschäffersethyläther," and stabilizers for azonium salts.

5051-5057 PB L 74914 — Quarterly report IV, 1938. By Manz. In German. 1.50
Various azo dyes.

5058-5059 PB L 74914 — "Benzechtrot BB." By Roos. 1939. In German. 1.50

5060-5063 PB L 74914 — Quarterly report III, 1938. By Manz. In German. 1.50
Poorly legible.

5064-5120 PB L 74914 — Reports at the 13th Scientific Ako (Commission for Azo dyes). 1938. In German. 7.00

5121-5130 PB L 74914 — Quarterly report II, 1938. By Manz. In German. 1.50
Various azo dyes.

5131-5134 PB L 74914 — Red diazo dyes. By Roos. 1938. In German. 1.50

5135 PB L 74914 — Chrome dyes from 6-amino-methylumbelliferone. By Schrum. 1938. In German. 1.50

5136-5140 PB L 74914 — Quarterly report I, 1938. By Manz. In German. 1.50
Diazo dyes. Not very legible.

5141-5144 PB L 74914 — Abstracts of reports at the 12th Scientific Ako, 1937. In German. 1.50

5145-5192 PB L 74914 — Reports at the 12th Scientific Ako, 1937. In German. 5.00

5193-5202 PB L 74914 — Reports, 1st and 2nd quarter 1937. By Manz. In German. 1.50
Not very legible.

5203-5240 PB L 74914 — Reports at the 11th Scientific Ako, 1937. In German. 4.00

5241-5245 PB L 74914 — Monthly report, November-December 1936. By Manz. In German. 1.50

5246-5288 PB L 74914 — Reports at 10th Scientific Ako, 1936. In German. 4.50

PB L 70333. I.G. FARBENINDUSTRIE A.G., LUDWIGSHAFEN, GERMANY. Dyes and dye intermediates. (FIAT Microfilm Reel C-2, Frames 1881-2076). (See also FIAT Microfilm Reel C-1, PB 70332). 1937. 94f. Price: Microfilm -$1.75 - Enlargement print -$9.50
This microfilm reel is a continuation of FIAT Microfilm reel C-1 (PB 70332) and contains reports of the main laboratory of I.G. Ludwigshafen covering the period November 5, to December 22, 1937. The individual items are listed below and will be available as enlargement prints. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
1881-1900 PB L 70333	Substantivity of cationic diazo compounds. By Ebel. n.d. In German. The reel starts with page 2 of this report.	$2.00
1901-1911 PB L 70333	Substantive naphthols. By Krzikalla and Alt. Nov 5, 1937. In German.	1.50
1912-1921 PB L 70333	The determination of hydrocyanic acid in formaldehyde and acetaldehyde cyanohydrins. By Schuhknecht and Wurzschmidt. Nov 8, Dec 8, 1937. In German.	1.50
1922-1929 PB L 70333	The 2:3 chrome complexes of o,o'-dihydroxy azo dyes. By Krzikalla and Pfitzner. Nov 9, 1937. In German.	1.50
1930-1934 PB L 70333	Sodium sulfite (anhydrous). By Wurzschmitt and Zimmermann. Nov 10, 1937. In German.	1.50
1935-1939 PB L 70333	Dihydroresorcinol coupling component II. By Krzikalla. Nov 15, 1937. In German.	1.50
1940 PB L 70333	This frame missing due to faulty numbering.	
1941-1949 PB L 70333	Substantive naphthol-amines. By Alt and Krzikalla. Nov 16, 1937. In German.	1.50
1950-1953 PB L 70333	Azo dyes from p-substituted alkylphenols. By Krzikalla. Nov 16, 1937. In German.	1.50
1953a-d PB L 70333	Report on the manufacture of 1-amino-2-nitroanthraquinones. By Ebel. Nov 16, 1937. In German.	1.50
1954-1963 PB L 70333	Vat dyes from carboxylic acids which can be vatted and amines which cannot be vatted. By Eberle. Nov 16, 1937. In German.	1.50
1964-1966 PB L 70333	Erganil dyes. By Krzikalla. Nov 18, 1937. In German.	1.50
1967-1969 PB L 70333	Wool dyes from bromo-amino acid and amino benzonitriles. By Kroberle and Steinerwald. Nov 18, 1937. In German.	1.50

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Dyes (contd)

1970-1974 PB L 70333 — Indigosols. By Kröberle and Bartl. Nov 18, 1937. In German. 1.50

1975-1982 PB L 70333 — Reactions of 1-aminoanthraquinone-2-aldehyde with malonic acid and barbituric acid in sulfuric acid. By Steigerwald. Nov 19, 1937. In German. 1.50

1983-1993 PB L 70333 — X-Ketobutylated amino-anthraquinones. By Hopff and Diebold. Nov 23, 1937. In German. 1.50

1994-1998 PB L 70333 — Fluorescent bodies. By Hopff and others. Nov 30, 1937. In German. 1.50

1999-2010 PB L 70333 — X-Ketobutylated basic dyes. By Hopff and Diebold. Dec 3, 1937. In German. 1.50

2011-2020 PB L 70333 — Hydrolysis of mono- and dichloroacetic acid. By Wurzschmitt and Schuhknecht. Dec 4, 1937. In German. 1.50

2021-2028 PB L 70333 — Copper-phthalocyanine sulfonamide and phthalocyanine sulfonic acids. By Köberle and Braun. Dec 6, 1937. In German. 1.50

2029-2057 PB L 70333 — New manufacturing processes of Vulcan Fast Blue. By Reindel and others. Dec 6,7, 1937. In German. 3.00

2058-2059 PB L 70333 — Analysis of a "yellowish preparation" of the Firma Geigy. By Kerckow. Dec 8, 1937. In German. 1.50

2060-2063 PB L 70333 — Developing dyeings by substantive naphtol-amines. By Krzikalla and Alt. Dec 3, 1937. In German. 1.50

2064-2076 PB L 70333 — The analytic use of sodium bisulfite to determine double linkages. By Wurzschmitt. Dec 22, 1937. In German. 1.50

PB L 70333 S. I.G. FARBENINDUSTRIE A.G., LUDWIGSHAFEN, GERMANY. Dyes and dye intermediates. (FIAT Microfilm Reel C-2, Frames 1881-2076, abstract cards.) 1937. 23p. Price: Microfilm -$1.00 - Photostat -$2.00
Brief abstracts are presented of the individual items of FIAT Microfilm reel C-2, (PB 70333) listed above. The abstracts were prepared by FIAT personnel in Germany.

Agricultural Chemicals

PB L 70392. I.G. FARBENINDISTRIE A.G., LUDWIGSHAFEN, GERMANY. Agricultural chemistry. (FIAT Microfilm Reel R-54, Frames 4076-4293). 1937-1946. 217 f. Price: Microfilm-$3.00 - Enlargement Print-$22.00.
The following reports are of the collection of the Agricultural Experiment Station at Limburgerhof, near Ludwigshafen. This station was a part of I.G. Farbenindustrie Ludwigshafen-Oppau and conducted tests on products made for agricultural use by I. G. and competitive firms. The station is under the direction of Dr. Huppert. There are two types of reports: 1) Berichte, and 2) Mitteilungen. The former are comprehensive reports on certain broad subjects while the latter are rather short records of individual experiments. The reel was prepared by FIAT personnel in Germany. 26 individual items are listed below and will be available as enlargement prints. The entire reel may be obtained as a microfilm for $3.00. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
4076 - 4113 PB L 70392	The washing out of nitrogen from the soil. By Pfaff. Sep 30, 1945. In German.	$4.00
4114 - 4125 PB L 70392	Experiments made in 1945 on the after-effect of sodium chlorate. By Römer. Jun 28, 1946. In German.	1.50
4126 - 4136 PB L 70392	Experiments on the after-effect of sodium chlorate made in box and lysimeter beds in the years 1942 - 1945. By Römer. Sep 16, 1946. In German.	1.50
4137 - 4144 PB L 70392	Detoxication of sodium chlorate by lime. By Römer. Jan 30, 1946. In German.	1.50
4145 - 4161 PB L 70392	Experiments made in 1944 on the after-effect of sodium chlorate. By Römer. Sep 11, 1945. In German.	2.00
4162 - 4172 PB L 70392	The effect of humate and fertilizing with nitrogen. Vegetative experiments made in 1944. By Pfützer. Mar 1, 1945. In German.	1.50
4173 - 4185 PB L 70392	Vegetative experiments on the influences of soil reaction and trace elements on the growth and the formation of crude protein of alfalfa. By Pfützer. Jan 25, 1945. In German.	1.50
4186 - 4191 PB L 70392	On the vacuum drying of fruits and vegetables. Apr 5, 1944. In German.	1.50
4192 - 4203 PB L 70392	Preliminary examination of the nitrogen containing slag product UE in lysimeter experiments 1941 - 1943. Mar 16, 1944. In German.	1.50
4204 - 4206 PB L 70392	Pot experiments on the influence of the hydrogen-ion concentration on the mobility of manganese in organic soils. By Pfützer. Feb 9, 1944. In German.	1.50
4207 - 4210 PB L 70392	Pot experiments on the influence of the hydrogen-ion concentration on the growth of vegetables. By Pfützer. Feb 10, 1944. In German.	1.50
4211 - 4216 PB L 70392	Effects of nutrients and trace elements on lowland marsh soil. By Pfützer. Jan 7, 1944. In German.	1.50
4217 - 4224 PB L 70392	Experiments made from 1942-1945 on the after-effects of sodium chlorate. By Römer. Dec 20, 1943. In German.	1.50
4225 - 4234 PB L 70392	Testing the sensitivity of different plants to sodium chlorate. Nov 29, 1943. In German.	1.50
4235 - 4238 PB L 70392	Experiments with the "Abra" drying chamber for cold air - drying in households. By Roter. Mar 10, 1943. In German.	1.50
4239 - 4245 PB L 70392	Pot experiments on the effect of ammonium nitrate mixed with loess on millet and mustard. By Pfützer. Jan 22, 1943. In German.	1.50
4246 - 4248 PB L 70392	Vegetative experiments with "Aceta" 1939. By Pfützer. Nov 2, 1940. In German.	1.50
4249 - 4251 PB L 70392	The chemical determination of vitamin B_1 by fluorescence measurements in the Pulfrich step photometer. By Roth. Feb 16, 1939. In German.	1.50

Agricultural Chemicals (contd)

4252 - 4261A PB L 70392 — Comparative experiments with four protein precipitants using a micro method. By Roth. Oct 3, 1938. In German. 1.50

4262 - 4263 PB L 70392 — Vegetative experiments with soil from the long-time-test lot. By Pfaff. Feb 23, 1938. In German. 1.50

4264 - 4270 PB L 70392 — Examinations of rain-water and of subsoil water. By Pfaff. Feb 21, 1938. In German. 1.50

4271 - 4278A PB L 70392 — The influence of fertilizing on the potassium content of grass. By Pfaff. Feb 4, 1938. In German. 1.50

4279 - 4282 PB L 70392 — Vegetative experiments with admixtures of biuret to urea and with different samples of lime nitrogen 1937. By Pfaff. Jan 19, 1938. In German. 1.50

4283 - 4286 PB L 70392 — Vegetative experiments with calcium lignosulfonates (Wolfen) 1937. By Pfaff. Jan 17, 1938. In German. 1.50

4287 - 4290 PB L 70392 — Vegetative experiments with beta-indolylacetic acid (1937). By Pfaff. Dec 23, 1937. In German. 1.50

4291 - 4293 PB L 70392 — Vegetative experiments with quicklime from knapsack, 1937. By Pfaff.. Dec 20, 1937. In German. 1.50

PB L 70392-S. I.G. FARBENINDUSTRIE A.G., LUDWIGSHAFEN, GERMANY. Agricultural chemistry. (FIAT Microfilm Reel R-54, Frames 4076-4293, abstract cards). 1937 - 1946. 30 p. Price: Microfilm-$1.00 - Photostat-$2.00.
Brief abstracts of the individual items on the above FIAT microfilm reel R 54, PB 70392, prepared by FIAT personnel in Germany.

PB L 73740. I. G. FARBENINDUSTRIE A. G., LUDWIGSHAFEN, GERMANY. Agricultural chemistry and soil science. (FIAT Microfilm Reel R-59, Frames 5867-6105). 1932-1946. 238 f. Price: Microfilm -$3.25 - Enlargement print-$24.00.
The following reports are from the collection of the Agricultural Experiment Station at Limburgerhof, near Ludwigshafen. This station was a part of I. G. Farbenindustrie Ludwigshafen-Oppau and conducted tests on products made for agricultural uses by I. G. and competitive firms. The station is under the direction of Dr. Huppert. There are two types of reports: 1) Berichte, and 2) Mitteilungen. The former are comprehensive reports on certain broad subjects, while the latter are rather short records of individual experiments. The reel was prepared by FIAT personnel in Germany. The 37 individual items on the reel are listed below and will be available as enlargement prints; the entire reel may be obtained as a microfilm for $3.25. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
5867-5875 PB L 73740	Production of a nourishing spice powder from waste whey, by means of the mild mold Cospora lactis. By Flieg. Mar 22, 1946. In German.	$1.50
5876-5882 PB L 73740	Soil biological studies on arable land and field boundaries. By Römer. Jan 27 1945. In German.	1.50
5883-5885 PB L 73740	Storage tests with various fertilizers. By Römer. n.d. In German.	1.50
5886-5893 PB L 73740	Storage tests with ammonium hydrocarbonate. By Römer. Nov 6, 1943. In German.	1.50
5894-5896 PB L 73740	Storage tests with various fertilizers. By Römer. Apr 28, 1943. In German.	1.50
5897-5904 PB L 73740	Investigations regarding root remainders. By Römer. Mar 15, 1943. In German.	1.50
5905-5908 PB L 73740	Damages due to sodium chlorate powder. By Römer. Nov 24, 1942. In German.	1.50
5909-5916 PB L 73740	Lime conditions and flora of the forestry fertilizing test grounds at Speyer. By Römer. Sep 10, 1938. In German.	2.00
5917-5918 PB L 73740	The use of "Hakaphos-New" in solution. By Römer. By Jun 9, 1938. In German.	1.50
5919-5923 PB L 73740	Miscibility of calcium cyanamide with superphosphate. Jun 9, 1938. In German.	1.50
5924-5927 PB L 73740	Lime conditions of the forestry fertilizing test ground at Schwetzing Hardt I. By Römer. Mar 1, 1938. In German.	1.50
5928-5931 PB L 73740	The cultivation of broom. By Römer. Dec 14, 1937. In German.	1.50
5932-5937 PB L 73740	Determination of oxalic acid in tobacco smoke. By Römer. Oct 29, 1932. In German.	1.50
5938-5941 PB L 73740	The distribution of phosphoric acid in the soil. By Römer. Jul 21, 1937. In German.	1.50
5943-5949 PB L 73740	Nitrogen losses from ammonium hydrocarbonate in the field. By Römer. May 24, 1937. In German.	1.50
5950-5953 PB L 73740	Soil sample drill "Rheinland." By Römer. Dec 9, 1936. In German.	1.50
5954-5957 PB L 73740	Improvement of the sprinkling capability of ammonium chloride, by different packings and additions. By Römer. Oct 28, 1936. In German.	1.50
5958-5965 PB L 73740	Nitrogen losses in case of urea-lime, humus carbon-urea and other fertilizers on the field. By Römer. Aug 24, 1936. In German.	1.50
5966-5968 PB L 73740	Use of "Hakaphos New" in solution. By Römer. Jul 22, 1936. In German.	1.50
5969-5975 PB L 73740	Nitrogen losses in a mixture of lime ammonia (grained), particularly calcium ammonium nitrate with ground basic slag and 40% potash fertilizing salt. By Römer. Jul 17, 1936. In German.	1.50
5976-5981 PB L 73740	Calcium cyanamide reaction. By Römer. Nov 27, 1935. In German.	1.50

5983-5991 PB L 73740	Losses in ammonia with calcium cyanamide, calcium ammonium nitrate and ammonium sulfate. By Römer. Jul 1, 1935. In German.	1.50
5993-6013 PB L 73740	Forestry fertilizing tests at Speyer; layers of the soil, investigations with the test drill. By Römer. May 20, 1935. In German.	2.50
6014-6016 PB L 73740	Solubility of phosphoric acid in "Nitrophoska (containing lime) A,B" and in "Nitrophoska III." By Römer. Jan 28, 1935. In German.	1.50
6017-6023 PB L 73740	Loss of ammonia in case of calcium cyanamide, calcium ammonium nitrate, ammonia sulfate and calcium nitrate. By Römer. Oct 29, 1934. In German.	1.50
6024-6025 PB L 73740	"Mineral G. F. H." By Römer. Sep 4, 1934. In German.	1.50
6026-6031 PB L 73740	Losses in ammonia of "Gafsa" phosphate and ammonium sulfate mixtures. By Römer. Jul 30, 1934. In German.	1.50
6032-6040 PB L 73740	Losses of ammonia when using different nitrogen fertilizers. By Römer. Aug 2, 1934. In German.	1.50
6041-6049 PB L 73740	Ammonia losses in case of raw phosphate-ammonium sulfate mixtures. By Römer. Nov 27, 1934. In German.	1.50
6050-6056 PB L 73740	Loss of ammonia in urea and urea lime fertilizing. By Römer. Nov 22, 1933. In German.	1.50
6057-6062 PB L 73740	Ammonia losses of raw phosphate-ammonium sulfate mixtures. By Römer. Oct 30, 1933. In German.	1.50
6063-6069 PB L 73740	Loss of ammonia in case of "lime ammonia" grained Op. and lime "Nitrophoska O. 1: 1.75." By Römer. Sep 27, 1933. In German.	1.50
6070-6074 PB L 73740	Experiments for producing rapeseed cakes free from mustard oil. By Römer. Dec 29, 1933. In German.	1.50
6075-6079 PB L 73740	A summary of literature on the feeding of fodder which contains mustard oil. In German.	1.50
6080-6092 PB L 73740	Storage tests with various fertilizers. By Römer. Sep 13, 1933. In German.	1.50
6093-6100 PB L 73740	Lime conditions and ground flora of the forestry fertilizing test ground at Schwetzinger Hardt. By Römer. Aug 30, 1933. In German.	1.50
6101-6105 PB L 73740	Dry ice for the storage of potatoes. By Volz. Sep 2, 1932. In German.	1.50

PB L 73740-S. I. G. FARBENINDUSTRIE A. G., LUDWIGSHAFEN, GERMANY. Agricultural chemistry and soil science. (FIAT Microfilm Reel B-59, Frames 5867-6105, abstract cards). 1932-1946. 48 p. Price: Microfilm-$1.00 - Photostat-$4.00.
Brief abstracts of the individual items on the above FIAT microfilm reel, B-59, PB 73740, prepared by FIAT personnel in Germany.

Plastics and Plasticizers

PB L 70176. I.G. FARBENINDUSTRIE A.G., HÖCHST, GERMANY. Urethane derivatives, miscellaneous chemicals and pharmaceuticals. (FIAT Microfilm Reel O-24, Frames 2931-3891). 1929-1945. 960f. Price: Microfilm -$6.00 - Enlargement print -$96.00
The first portion of the reel consists mainly of reports from the Acetone-Acetic acid Department of I.G. Höchst. These reports deal with Uresins (urethane derivatives) urethanes, and a few other chemicals. The last part of the film (frames 3351-3891) consist of brief reports dealing with the testing of 449 synthetic compounds used for therapeutic purposes. 64 individual items are listed below and will be available as enlargement prints. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
2931-2951 PB L 70176	Preparation and reactions of aliphatic nitro compounds. By Wulff. 1938. In German.	$2.50
2952-2954 PB L 70176	Letters of the literature department to the plants of the I.G. By Kraenzlein. Aug 18, 1939. In German.	1.50
2955-2960 PB L 70176	Inspection of a naphthalene oxidation plant. By Jockusch and Mehn. Jun 11, 1943. In German.	1.50
2961-2962 PB L 70176	Determination of the content of bichromate in bichromate-sulfuric acid (acid for acetylene purification). Dec 22, 1939. In German.	1.50
2963-2966 PB L 70176	Testing of some salts of the levulinic acid as auxiliary agents for textiles. By Roth. Mar 22, 1939. In German.	1.50
2967 PB L 70176	Letter of the preparation department of I.G. Hoechst to I.G. Leverkusen. By Kuchenbecker. Jul 7, 1931. In German.	1.50
2968 PB L 70176	Determination of diglycolic acid, hydrochloric acid, sodium (potassium) diglycolate and sodium chloride in the same solution. By Hanke. Dec 29, 1942. In German.	1.50
2969-2992 PB L 70176	Wetting agent. 1929-1938. In German. Legibility of several frames poor.	2.50
2993-3034 PB L 70176	Substitutes for Glycerol. 1940. In German.	4.50
3035 PB L 70176	Letter of the sales department for chemicals to acetone-acetic acid dept. Sep 23, 1942. In German.	1.50
3036-3038 PB L 70176	Olefins and Paraffins obtainable at low costs. By Nicodemus. Oct 1937. In German.	1.50
3039 PB L 70176	Octanetriol for use in binding agents for linoleum. Jun 19, 1940. In German.	1.50
3040-3042 PB L 70176	Octanetriol. Feb-Mar 1940. In German.	1.50
3043-3045 PB L 70176	Octanediol esters of fore-run fatty acids. Nov 20, 1939. In German.	1.50
3046-3049 PB L 70176	Composition of Ortoxin. Jan 11, 1932. In German. One frame almost illegible and will not reproduce well.	1.50
3050 PB L 70176	Oxazolidone. By Wulff. May 29, 1940. In German.	1.50
3051-3053 PB L 70176	Investigation of "Oxosulfats." Oct 1942. In German.	1.50
3054-3055 PB L 70176	Oxidation of oleic and other unsaturated carboxylic acids. By Criegee. Nov 16, 1936. In German.	1.50

3056-3059 PB L 70176 Oppanol foils for lining purposes. n.d. In German. 1.50

3060 PB L 70176 Discussion on chloroprene. By Hager. Apr 28, 1941. In German. Poor legibility. 1.50

3061-3062 PB L 70176 Inspection of the pilot-plant for Oppanol emulsion. By Selle and Wehn. May 29, 1943. In German. 1.50

3063-3065 PB L 70176 Milling auxiliary. Jan 18, 1943. In German. 1.50

3066-3071 PB L 70176 Viskol-SMa (polymerized acrylic acid). Jul 24, 1941. In German. 1.50

3072-3076 PB L 70176 Replacement of Viskol SMa (polymerized acrylic acid) by other emulsifiers. By Hahn. Jan 27, 1939. In German. 1.50

3077-3081 PB L 70176 Vinyl isoheptylate. By Himmler. Jul 15, 1942. In German. 1.50

3082-3122 PB L 70176 The addition reaction of compounds with olefinic double bonds. By Fitzki. Jan 15, 1942. In German. 4.50

3123-3124 PB L 70176 Vulcanization accelerators. By T. Schulz. Oct 15, 1945. In German. 1.50

3125-3135 PB L 70176 Testing of ethyl and butyl uresin as plasticizers. Jun 3, 1937. In German. Several frames will not reproduce well. 1.50

3136-3138 PB L 70176 Uresins as plasticizers for Igelit. Jul 19, 1937. In German. These frames will not reproduce well. 1.50

3139-3146 PB L 70176 Testing of ethyl and butyluresin (supplementary report). Mar 3, 1938. In German. 1.50

3147-3154 PB L 70176 Uresins and Duresins. By Weihe. Mar 8, 1937. In German. 1.50

3155 3171-3175 PB L 70176 Byproducts of the butyl uresin production. Mar 3, 1942. In German. 1.50

3156-3166 PB L 70176 Uresin B (a condensation product from formaldehyde and butyl urethane). 1940-1941. In German. 1.50

3167-3168 PB L 70176 Structure of Uresin B. By Moeller and Ambros. Jan 24, 1940. In German. One frame will not reproduce well. 1.50

3169-3170 PB L 70176 Draft for an information pamphlet for Uresin B. By Weihe. Feb 28, 1940. In German. 1.50

3171-3175 PB L 70176 See frame 3155.

3176 PB L 70176 Production of carbamyl chloride. Feb 28, 1941. In German. 1.50

3177 PB L 70176 Production of 1,4-butyleneglycol diurethane. Feb 28, 1941. In German. 1.50

3178-3179 PB L 70176 Urethane from butylene glycol. By Moeller and Nicodemus. Oct 11, 1939. In German. 1.50

3180 PB L 70176 Condensation product of 1,4-butyleneglycol diurethane with formaldehyde and isobutyraldehyde. n.d. In German. 1.50

3181-3196 PB L 70176 Experiments for the formation of high molecular compounds by means of condensation reactions. Oct 19, 1936. In German. 2.00

3197-3207 PB L 70176 Report on the production of butyl urethane. By Leupold. May 17, 1941. In German. 1.50

3208 PB L 70176 Absorption of ammonia in the production of butyl urethane. Mar 7, 1941. In German. 1.50

3209 PB L 70176 Production of butyl urethane. Aug 5, 1938. In German. 1.50

3210-3211 PB L 70176 Diurethane from diethylamine and 1,4-butylene glycol. By Weihe and Mueller. Nov 9, 1940. In German. 1.50

3212 PB L 70176 Table physical constants of the urethanes. Nov 24, 1942. In German. 1.50

3213-3214 PB L 70176 Production of urethanes. By Kraenzlein. Aug 29, 1940. In German. 1.50

3215-3216 PB L 70176 Studies on urethanes and uresins. Jul 29, 1940. In German. 1.50

3217-3218 PB L 70176 Urethane-Uresin-plant. Jan 18, 1943. In German. 1.50

3219-3220 PB L 70176 Operation instruction for urethane. Nov 26, 1942. In German. 1.50

3221 PB L 70176 Production of urethanes. By Weihe. May 27, 1940. In German. 1.50

3222-3235 PB L 70176 Detection and determination of mixed volatile acids. By Blumrich. Aug 28, 1942. In German. 1.50

3236-3248 PB L 70176 Correspondence between some departments of I.G and the WASAG, concerning "Sorbit" production. n.d. In German. Several frames will not reproduce well. 1.50

3249-3258 PB L 70176 "Solutionssalz CN." 1939-1940. In German. Most frames are barely legible and will not reproduce well. 1.50

3259 PB L 70176 "Solutionssalz B neu 70." By Krzikolla. Oct 21, 1939. In German. 1.50

3260-3261 PB L 70176 "Solutionssalz BN." Apr 16, 1932. In German. 1.50

3262-3263 PB L 70176 "Sorbitol," May 9, 25, 1938. In German. One frame will not reproduce well. 1.50

3264-3269 PB L 70176 The evaluation of Hostaprene (Polychloroprene) for technical use. By Weihe. May 25, 1938. In German. 1.50

3270-3273 PB L 70176 Glues for wood. By Schulz. Feb 28, 1945. In German. These frames will not reproduce well. 1.50

3274-3292 PB L 70176 Gluing of wood. By Schulz. Jun 26, 1945. In German. 2.00

3293-3319 PB L 70176 Production of nitromethane. By Kraemer. Sep 12, 1939. In German. 3.00

3320-3323 PB L 70176 Testing methods for Mowital O 70. By Schulz. Nov 10, 1944. In German. 1.50

3324 PB L 70176 Perlon fabric. Synthetic fiber test. By Roth. Aug 11, 1944. In German. 1.50

3325-3350 PB L 70176 Mowital. By Marthe. May 1944, Jan 1945. In German. Several frames are barely legible and will not reproduce well. 3.00

3351-3891 PB L 70176 Experimental testing of pharmaceutical preparations. By Schaumann and Schnitzer. 1930-1931. In German. 54.50

PB L 70176-S. I.G. FARBENINDUSTRIE A.G., HÖCHST, GERMANY. Urethane derivatives, miscellaneous chemicals, and pharmaceuticals. (FIAT Microfilm Reel O-24, Frames 2931-3891, abstract cards). 1929-1945. 65p. Price: Microfilm -$2.00 - Photostat -$5.00
Brief abstracts are presented of the individual items of Microfilm Reel O-24 (PB 70176), listed above. These abstracts were prepared by FIAT investigators in Germany.

P B L 70496. I.G. FARBENINDUSTRIE A.G., LUDWIGSHAFEN, GERMANY. Protective coatings. (FIAT Microfilm Reel X 17, Frames 8780-9163). 1941-1942. 383 f. Price: Microfilm-$4.75 - Enlargement Print-$38.50. This microfilm, prepared by FIAT personnel in Germany contains 35 items as listed below. These items are available individually as enlargement prints only, however the entire reel may be purchased as a microfilm for $4.75. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
8780 - 8783 PB L 70496	Lacquering of spun rayon hose. By Kollek and Opitz. Mar 29, Oct 2, 1941. In German.	$1.50
8784 - 8840 PB L 70496	Test results on various copolymers produced with tetrahydrofurfuryl, cyclohexyl, beta-chloroethyl, or various aliphatic vinyl ethers. Oct 23, 1941. In German.	6.00
8841 - 8870 PB L 70496	"Rohagit". By Cyriax. Oct 29, 1941. In German.	3.00
8871 - 8891 PB L 70496	Condensation products with hexamethylene diisocyanate and toluylene diisocyanate. Nov 21, 1941. In German.	2.50
8892 - 8907 PB L 70496	Influence of the composition of "Luphen" varnishes on their properties. Nov 14, 1941. In German.	2.00
8908 - 8943 PB L 70496	Milk can varnishing with "Luphen S". Dec 1, 1941. In German.	4.00
8944 - 8950 PB L 70496	Experiments on the application of "Schambit" as anti-rusting primary coat free from oil. Dec 4, 1941. In German.	1.50
8951 - 8955 PB L 70496	"Acronal II D" under the influence of nitrogen. Dec 13, 1941. In German.	1.50
8956 - 8958 PB L 70496	Resistance to cold and water of nitrocellulose films with different plasticizers. Jan 15, 1942. In German.	1.50
8959 - 8980 PB L 70496	Modified alkyd resins from chlorine containing maleic acids. Jan 30, 1942. In German.	2.50
8981 - 8986 PB L 70496	"Desmophen" varnishes. Jan 26, 1942. In German.	1.50
8987 - 9000 PB L 70496	Superpolyamides as varnish raw material. Feb 2, 1942. In German.	1.50
9001 - 9013 PB L 70496	Comparison of various phenolic resins for food can varnishes. Jan 29, 1942. In German.	1.50
9014 - 9017 PB L 70496	A new mixed resin. Feb 5, 1942. In German.	1.50
9018 - 9027 PB L 70496	Alkyd resins from chloromaleic acid. Feb 6, 1942. In German.	1.50
9028 - 9037 PB L 70496	"Acronals." Feb 27, 1942. In German.	1.50
9038 - 9054 PB L 70496	Copolymers of acrylic esters. Mar 5, 1942. In German.	2.00
9055 - 9058 PB L 70496	"Luphen" varnishes. Dec 23, 1941. In German.	1.50
9059 - 9065 PB L 70496	"Butol"-phthalic esters. Feb 28, 1942. In German.	1.50
9066 - 9071 PB L 70496	Testing the durability and weather resistance of films on pine wood, produced from "Alkydals" or "Alkydal" combination varnishes as compared with films from oil varnishes. Mar 4, 1942. In German.	1.50
9072 - 9074 PB L 70496	Comparison of the polyacrylic esters and polymetacrylic esters as to their varnishing properties. Mar 7, 1942. In German.	1.50
9075 - 9078 PB L 70496	Weather resistance of varnishes on an "Alkydal" basis for road and signal signs. Mar 12, 1942. In German.	1.50
9079 - 9088 PB L 70496	Yellowing test. Mar 14, 1942. In German.	1.50
9089 - 9098 PB L 70496	Cyclohexanone-formaldehyde resins. Mar 19, 1942. In German.	1.50
9099 - 9102 PB L 70496	Use of distillation residues of 1,4-butanediol, tetrahydrofuran and butadiene. Apr 1, 1942. In German.	1.50
9103 - 9106 PB L 70496	Testing decalyl-3-propyl ether-1-amine as to its application in paints. Mar 31, 1942. In German.	1.50
9107 - 9109 PB L 70496	Use of Adhesives "73 H" and "N" as varnishes. Apr 1, 1942. In German.	1.50
9110 - 9114 PB L 70496	Phthalic ester of the low first run fatty alcohols C_4-C_6 (Prod. V 337). Apr 11, 1942. In German.	1.50
9115 - 9121 PB L 70496	Suprepolyamides as raw materials for varnishes. Apr 17, 1942. In German.	1.50
9122 - 9127 PB L 70496	Plasticizer V/258/41. May 21, 1942. In German.	1.50
9128 - 9131 PB L 70496	The use of "Desmosits" in wood varnishes. May 26, 1942. In German.	1.50
9132 - 9148 PB L 70496	Influence of various positive and negative catalysts on the polymerization of styrene at room-temperature. May 1, 1942. In German.	2.00
9149 - 9158 PB L 70496	Influence of different polymers and different quantities of "Soft Resin AT" on phenolic resins in food can varnishes. May 18, 1942. In German.	1.50
9159 - 9162 PB L 70496	Plasticizer "AC" in wood lacquers free from oil. Jun 16, 1942. In German.	1.50
9163 PB L 70496	Denaturing of tricresyl phosphate. Jun 22, 1942. In German.	1.50

PB L 70496-S. I.G. FARBENINDUSTRIE A.G., LUDWIGSHAFEN, GERMANY. Protective coatings. (FIAT Microfilm Reel X 17, Frames 8780-9163, abstract cards). 1941-1942. 36 p. Price: Microfilm-$1.00 - Photostat-$3.00. Abstract cards of the individual items on the above microfilm reel, X17, PB 70496, prepared by FIAT personnel in Germany.

PB L 70065. I. G. FARBENINDUSTRIE A. G., LUDWIGSHAFEN, GERMANY. Analysis procedures and equipment. (FIAT Microfilm Reel G-25, Frames 2762-3620) 1930-1937. 857 f. Price: Microfilm-$6.00 - Enlargement print-$96.00 This microfilm reel was prepared by FIAT personnel in Germany. 75 individual items on this reel are listed below. Individual items will be available as enlargement prints; the entire reel may be obtained as a microfilm for $6.00. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
2762-2768 PB L 70065	Explosion limits of gas-air or steam-air mixtures. In German. Continuation of Reel G-24, Frames 2756-2761, PB 70064, Volume 8, Page 231.	$1.50
2769-2784 PB L 70065	Detection and determination of carbon monoxide in the atmosphere. By Hiecke. Sep 12, 1932. In German.	1.50
2785-2787 PB L 70065	Constitution of diamino anthraquinone and aminohydroxy anthraquinone. Mar 27, 1933. In German.	1.50
2788-2795 PB L 70065	Determination of ethanol which is present simultaneously with methanol and higher alcohols. Apr 27, 1933. In German.	1.50
2796-2798 PB L 70065	Apparatus for analyzing gases. May 5, 1933. In German.	1.50
2799-2824 PB L 70065	Determination of free acid in commercial ammonium sulfate. By Pfundt. Sep 25, 1930. In German.	2.50
2825-2833 PB L 70065	Destruction of an aluminum vessel by hot phenol. By Femen. Jun 2, 1933. In German.	1.50
2834-2842 PB L 70065	Quantitative determination of formic acid in the presence of acetic acid and its homologues and formaldehyde. By Flemming. Aug 1932. In German.	1.50
2843-2847 PB L 70065	Determination of the total sulfur content of used solutions of "Alkazid." By Grassner. Sep 7, 1933. In German.	1.50
2848-2868 PB L 70065	Simultaneous quantitative determination of ammonia, mono-, di-and trimethylamine. By Grassner. Oct 9, 1933. In German.	2.00
2869-2920 PB L 70065	Hydrogenated gasoline from petroleum of Volkenroda. By v. Reibnitz and others. Mar 15, 1933. In German.	5.50
2921-2926 PB L 70065	Determination of wood-oil in binding agents and oil paints. By Zepf. Apr 16, 1931. In German.	1.50
2927-2933 PB L 70065	Determination of the mercuric ion simultaneously occuring with the mercurous ion and acetaldehyde in the catalyst acid. By Grassner. Jan 8, 1934. In German.	1.50
2934-2939 PB L 70065	The new indicator dye "Sulfazin." By Baeuerlein. Jan 2, 1934. In German.	1.50
2940-2946 PB L 70065	Quantitative measurement and absorption of acetaldehyde. By Flemming and van Taack. Mar 23, 1934. In German.	1.50
2947-2959 PB L 70065	Determination of very small quantities of pyridine in ammonia water and ammonium salts. By Grassner. Mar 16, 1934. In German.	1.50
2960-2971 PB L 70065	Production of organic-chemical preparations with very small quantities of substances. By Grassner. May 14, 1934. In German.	1.50
2972-2989 PB L 70065	Determination of small quantities of fluorine in organic substances. By Grassner. Jul 27, 1934. In German.	2.00
2990-3027 PB L 70065	Determination of acetylene in the air. By Wetzig. Sep 5, 1934. In German.	4.00
3028-3032 PB L 70065	Distinction of Chile saltpeter and synthetic sodium nitrate by means of a fluorescence reaction. By Gassner. Nov 1, 1934. In German.	1.50
3033-3040 PB L 70065	Preparation of organic mercury compounds of anthraquinone and of some sulfonic acids. Dec 4, 1934. In German.	1.50
3041-3053 PB L 70065	Preparation of various anthraquinone tri-and tetrasulfonic acids. Dec 6, 1934. In German.	1.50
3054-3073 PB L 70065	Method of determining small quantities of gold. By Heinze. Nov 2, 1934. In German.	2.00
3074-3078 PB L 70065	Micro-sublimation apparatus. By H. Wolff II. Jan 15, 1935. In German.	1.50
3079-3081 PB L 70065	Dephlegmation column for laboratory distillation. Dec 1934. In German.	1.50
3082-3084 PB L 70065	Measurement of pH with the glass electrode. Mar 1, 1935. In German.	1.50
3085-3098 PB L 70065	Application of the glass electrode for electrovolumetric analysis. Feb 11, 1935. In German.	1.50
3099-3099a PB L 70065	Determination of As, Sb, Sn, Pb, Mn, Cu, Cd and Zn. Apr 18, 1935. In German.	1.50
3100-3115 PB L 70065	Determination of water in lignite. By Heinzmann. Mar 1932. In German.	1.50
3116-3166 PB L 70065	Determination of water in calcium ammonium nitrate. By Heinzmann. Jun 1933. In German.	5.00
3167-3173 PB L 70065	Changing the light absorption analysis to the determination of the molar extinction. By Krueger. Mar 31, 1935. In German.	1.50
3174-3180 PB L 70065	Calorimetric methods for quantitative analyses. By Karl Blumrich. May 17, 1935. In German.	1.50
3181-3203 PB L 70065	List of explosive substances for recognizing the danger of explosions. Mar 18, 1935. In German.	2.50
3204-3216 PB L 70065	Determination of cyanide in calcium cyanamide. By Grassner. Mar 13, 1935. In German.	1.50
3217-3225 PB L 70065	Measurement of pH with the glass electrode. Jul 29, 1935. In German.	1.50

3226-3227 PB L 70065 — Determination of carbonate in caustic potash. Jun 27, 1935. In German. 1.50

3228-3235 PB L 70065 — CO_2 - washing of catalyst gas. Nov 12, 1935. In German. 1.50

3236-3241 PB L 70065 — Colorimetric measurements of mineral oil products. By Rudolf Kostschau. n.d. In German. 1.50

3242-3246 PB L 70065 — Determination of 1,4-divinylbenzene in styrene. By Krueger. Sep 24, 1935. In German. 1.50

3247-3255 PB L 70065 — Determination of the gas density and the molecular weight. Jul 15, 1935. In German. 1.50

3256-3264 PB L 70065 — Measurement of the pH. By Reitz. Oct 14, 1935. In German. 1.50

3265-3269 PB L 70065 — Chemical analysis methods in the iron industry. By Classen. Dec 31, 1935. In German. 1.50

3270-3273 PB L 70065 — Polymerization experiments with acrylonitrile. By Fischer. Mar 4, 1936. In German. 1.50

3274-3277 PB L 70065 — Polymerization of acrylonitrile. By Fischer. Mar 13, 1936. In German. 1.50

3278-3279 PB L 70065 — Points of solidification of mixtures of chlorosulfonic acid and sulfur trioxide. By Blumrich. Mar 27, 1936. In German. 1.50

3280-3301 PB L 70065 — Electro-volumetric determination of pH. Apr 15, 1936. In German. 2.50

3302-3307 PB L 70065 — p-Phenylenediamine present in nitrophenylparamine acid. May 27, 1936. In German. 1.50

3308-3314 PB L 70065 — Titration of weak bases in glacial acetic acid. By Blumreich. May 22, 1936. In German. 1.50

3315-3354 PB L 70065 — Feeding of very high pressure vessels with chemically treated water. By Wesly and Geisler. Jun 30, 1936. In German. 4.00

3355-3368 PB L 70065 — Potentiometric titration of molybdenum. Jun 30, 1936. In German. 1.50

3369-3384 PB L 70065 — Extraction of bromine from sea water and brines. By Grassner. Jul 16, 1936. In German. 1.50

3385-3386 PB L 70065 — Determination of the content of dichlorobenzenes with the aid of dielectric constants. Oct 6, 1936. In German. 1.50

3387-3390 PB L 70065 — A highly active oxidizing agent for carbon monoxide. By Wetzel. Oct 16, 1936. In German. 1.50

3391-3412 PB L 70065 — Treating water with sodium hexametaphosphate (Calgon). By Wesly. Oct 16, 1936. In German. 2.50

3413-3426 PB L 70065 — Softening water by means of "Neopermutite." By Wesly. Oct 21, 1936. In German. 1.50

3427-3433 PB L 70065 — Softening water with softening agents of I. G. Farben. By Wesly. Oct 1, 1936. In German. 1.50

3434-3443 PB L 70065 — Analysis of test specimens rich in rhodium, ruthenium and iridium. By W. Grieb. Oct 15, 1936. In German. 1.50

3444-3458 PB L 70065 — Quick determination of small quantities of mercury present in gases and commercial solutions. By Oswald. Feb 27, 1936. In German. 1.50

3459-3464 PB L 70065 — Analysis of gas mixtures by rectifying distillation. By Wustrow. Jan 12, 1937. In German. 1.50

3465-3472 PB L 70065 — Potentiometric determination of cobalt in nickel mats and ores. By Classen. Dec 9, 1936. In German. 1.50

3473-3474 PB L 70065 — Determination of polyglycol ethers of phenols substituted. Feb 18, 1937. In German. 1.50

3475-3479 PB L 70065 — Determination of crude anthracene. By Mueller. Jan 29, 1937. In German. 1.50

3480-3500 PB L 70065 — The importance of the pH in the coupling analysis. By Krueger. Mar 5, 1937. In German. 2.00

3501-3515 PB L 70065 — Potentiometric determination of copper. By Classen. Apr 14, 1937. In German. 1.50

3516-3521 PB L 70065 — Apparatus for the production of double distilled water. By Grassner. Mar 30, 1937. In German. 1.50

3522-3571 PB L 70065 — Analytical methods for synthetic resins. By A. Voss. Apr 8, 1937. In German. 5.00

3572-3577 PB L 70065 — Determination of alkali sulfate in washing agents by means of the benzidine method. By Heinze. Mar 18, 1937. In German. 1.50

3578-3585 PB L 70065 — Detection of Ca present with Mg in saturated mineral salt brines. By Buettgenbach. Jun 8, 1937. In German. 1.50

3586-3590 PB L 70065 — Determination of the composition of mixtures of polymeric iso octyl-phenylpolyglycol ethers. By Baudel. Feb 8, 1937. In German. 1.50

3591-3594 PB L 70065 — Volumetric analysis of alkali polysulfide. By Wintersberger. Jun 15, 1937. In German. 1.50

3595 PB L 70065 — Analysis of sodium polysulfide. Jul 12, 1937. In German. 1.50

3596-3598 PB L 70065 — Volumetric determination of alkali polysulfide. By Wurzschmit. Jul 26, 1937. In German. 1.50

3599-3600 PB L 70065 — Composition of a pure tanning agent. By Hiltner. Jan 18, 1937. In German. 1.50

3601-3618 PB L 70065 — Determination of lactic acid present in sour fodder. By Flieg. Jul 29, 1937. In German. 2.00

3619-3620 PB L 70065 — Detection of Al present in saturated brines of mineral salt. By Buettgenbach. Sep 4, 1937. In German. 1.50
Title page only.

PB L 70065-S. I. G. FARBENINDUSTRIE A. G., LUDWIGSHAFEN, GERMANY. Analysis procedures and equipment. (FIAT Microfilm Reel G-25, Frames 2762-3620, abstract cards). 1930-1937. 75 p. Price: Microfilm-$2.00 - Photostat-$5.00.
Brief abstracts of the individual items on the above FIAT microfilm reel G-25, PB 70065, prepared by FIAT investigators in Germany.

PB L 70488. I. G. FARBENINDUSTRIE A. G. Research reports. (FIAT Microfilm Reel M 145, Frames 3498-3636) 1936-1942. 138 f. Price: Microfilm-$2.25 - Enlargement print-$14.00

This FIAT microfilm reel contains seven reports in the fields of physical chemistry, applied chemistry, and chemical technology. Individual reports may be obtained as enlargement prints. Please include both the PB and frame numbers when ordering an individual item. These reports are in German.

Frames	Title	Price
3498-3519 PB L 70488	Calculation of the specific heat of gaseous tetrahydrofuran from its Raman specter. By Weissweiler. 1939. In German.	$2.50
3520-3534 PB L 70488	Testing of laundry agents in the laboratory. By Waupes and Hengstenberg. 1936-1937. In German.	1.50
3535-3557 PB L 70488	Physico-chemical aids and technical equipment for emulsification processes. By Hengstenberg. 1938. In German.	2.50
3558-3560 PB L 70488	Highly alkylated Nekals. By Limbacher and Hengstenberg. 1938. In German.	1.50
3561-3564 PB L 70488	"Ramasits" based on zirconium compounds. By Hengstenberg and Siefert. 1938. In German.	1.50
3565-3587 PB L 70488	Boiling point and condensation point curves of binary mixtures. By Binkele. 1940. In German.	2.50
3588-3636 PB L 70488	Experiments for minimizing the effects of acetylene explosions. By Weissweiler. 1941-1942. In German.	5.00

PB L 70220. I. G. FARBENINDUSTRIE A. G., FRANKFURT AM MAIN, GERMANY. Naphthalene derivatives (Literature up to January 1, 1937). (FIAT Microfilm Reel K 32, Frames 1-866) (See also FIAT Microfilm Reel K 33, PB L 70221 and K 34, PB L 70222) n. d. 866 f. Price: Microfilm-$6.00 - Enlargement print-$87.00

This reel deals with homologs, halo derivatives, nitro, azido, and hydroxy compounds, carboxylic acids, hydroxy carboxylic acids, sulfinic and sulfonic acids. A compilation of all naphthalene derivatives is presented in FIAT Microfilm Reels K 32 (this reel), K 33 (PB L 70221), and Frames 1706-1982 of K 34 (PB L 70222). See below. In German.

PB L 70221. I. G. FARBENINDUSTRIE A. G., FRANKFURT AM MAIN, GERMANY. Naphthalene derivatives. (Literature up to January 1, 1937.) (FIAT Microfilm Reel K 33, Frames 867-1705) (See also FIAT Microfilm Reels K 32, PB L 70220 and K 34, PB L 70222) n. d. 839 f. Price: Microfilm-$6.00 - Enlargement print-$84.00

This reel is a continuation of K 32 (PB L 70220) and includes sulfur, selenium and a few tellurium compounds, keto and hydroxy keto compounds, amino carboxylic acids, and amino sulfonic acids. In German.

PB L 70222. I. G. FARBENINDUSTRIE A. G., FRANKFURT AM MAIN, GERMANY. Naphthalene derivatives. (Literature up to January 1, 1937.) Polyacrylic amides and esters. Finishing and sizing agents. (FIAT Microfilm Reel K 34, Frames 1706-2398) (See also FIAT Microfilm Reel K 32, PB L 70220 and K 33, PB L 70221) 1931-1946. 692 f. Price: Microfilm-$6.00 - Enlargement print-$69.50.

Frames 1706-1982 of Microfilm Reel K 34 are a continuation of reel K 33 (PB L 70221). These frames include the following: Derivatives with aldehydes, ketones, hydroxy acids and keto acids; N-substituted carboxylic and sulfonic acids; N-substituted alkyl and aryl derivatives; carbamido and urea derivatives; derivatives of β-naphthyl ureas and β-naphthyl carboxylic acids; amine homologs, diamines and polyamines; and nitroso compounds of β-naphthylamine from 1-nitroso-2-hydroxynaphthalene and naphthylamines. Frames 1983-2398 (balance of the reel) consist of individual reports (1939-1944) dealing chiefly with acrylic amides and esters, and sizing and finishing agents. The individual items are listed below and will be available as enlargement prints. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
1983-1984 2045-2046 PB L 70222	Use of acrylic-hydroxyethyl amide (monomer and polymer) for the polymerization of vinylester. By Stark. Mar 23, 1942. In German.	$1.50
1985 PB L 70222	Note concerning acrylolactic esters. By Karl. Feb 27, 1942. In German.	1.50
1986 PB L 70222	Note concerning the production of methacrylic acid. By Stark. Dec 12, 1940. In German.	1.50
1987-2014 PB L 70222	Correspondence (miscellaneous). 1940. In German.	3.00
2015 PB L 70222	Preparation of acrylyl chloride. By Greune. Jul 9, 1942. In German.	1.50
2016 PB L 70222	Preparation of acrylamide. Jun 19, 1942. In German.	1.50
2017 PB L 70222	Preparation of acrylic dimethylamide. Jun 19, 1942. In German.	1.50
2018 PB L 70222	Preparation of acrylic hydroxyethylamide. Jun 19, 1942. In German.	1.50
2019 PB L 70222	Preparation of acrylic methylamide. Jun 19, 1942. In German.	1.50
2020 PB L 70222	Preparation of acrylic ethylamide. Jun 19, 1942. In German.	1.50
2021-2022 PB L 70222	Conference concerning (1) Co-polymerization of acrylamides in butadiene, (2) Anti-aging agent. By Corell. Jan 18, 1941. In German.	1.50
2023-2028 PB L 70222	Conference concerning the development of plastics. By Sönke. Jun 20, 1940. In German.	1.50
2029-2040 2096-2102 PB L 70222	Notes made during a conference concerning the preparation of olefins. Nov 16, 1939. In German.	2.00
2041-2044 PB L 70222	Tests for the preparation of methyacrylic diisobutylamide. By Karl Wilke. Oct 1, 1942. In German.	1.50
2045-2046 PB L 70222	See Frames 1983-1984.	
2047-2048 PB L 70222	The possibilities of large-scale production of acrylic diphenylamide. By Corell. Mar 16, 1942. In German.	1.50
2049-2051 PB L 70222	Résumé of the test results of co-polymers from butadiene and acrylic diisobutylamide (70:30). By Kern. Mar 14, 1942. In German.	1.50

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2052-2053 PB L 70222 — Polyhydroxy acrylamides and their application in the textile industry. By Corell. Nov 24, 1941. In German. 1.50

2054-2064 PB L 70222 — Examination of acrylamides, acrylesters and other compounds with regard to their suitability as protective agents for butadiene. By W. Kern. May 26, 1941. In German. 1.50

2065-2071 PB L 70222 — Reactions with acrylyl chloride. By Karl. Jun 28, 1941. In German. 1.50

2072-2073 PB L 70222 — Production of acrylic n-butylamide. By Kleu. Aug 5, 1940. In German. 1.50

2074-2084 PB L 70222 — Acrylic and methacrylic amides and esters. By Corell and others. Jul 9, 1940. In German. 1.50

2085-2090 PB L 70222 — Tests for the preparation of acrylyl and methacrylyl chloride from β-chloropropionyl chloride and β-chloro-isobutyryl chloride. By W. Schmidt. Jun 7, 1940. In German. 1.50

2091-2095 PB L 70222 — Order for the preparation of some vinyl compounds. By Kränslein. Mar 26, 1940. In German. 1.50

2096-2102 PB L 70222 — See Frames 2029-2040. These frames consist of typewritten sheets which are duplicates of those of Frames 2034-2040 but with somewhat different pencilled notations.

2103-2107 PB L 70222 — Brief report as to the reactions of β-chloropropionyl chloride for the preparation of acrylic amides and esters. By Kränslein. Oct 26, 1939. In German. 1.50

2108-2113 PB L 70222 — Reaction equations and formulas. Oct 14, 1939. In German. 1.50

2114-2116 PB L 70222 — Acrylyl chloride from β-chloropropionyl chloride by thermal cleavage of hydrochloric acid. By Schörnig. Jun 9, 1943. In German. 1.50

2117 PB L 70222 — Preparation of acrylic diisobutylamide. By Corell and Kleu. Oct 22, 1942. In German. 1.50

2118 PB L 70222 — Purification of acrylic diphenylamide. By Kleu. Jul 27, 1942. In German. 1.50

2119 2135 PB L 70222 — Preparation of β-chloropropionic diphenylamide. By Kleu. Mar 23, 1942. In German. 1.50

2120 PB L 70222 — Preparation of acrylic diphenylamide. By Wild. Feb 23, 1942. In German. 1.50

2121 PB L 70222 — This frame is a duplicate of Frame 2016.

2122 PB L 70222 — This frame is a duplicate of Frame 2017.

2123 PB L 70222 — This frame is a duplicate of Frame 2018.

2124 PB L 70222 — This frame is a duplicate of Frame 2020.

2125 PB L 70222 — This frame is a duplicate of Frame 2019.

2126 PB L 70222 — This frame is a duplicate of Frame 2119.

2127 PB L 70222 — This frame is a duplicate of Frame 2120.

2128-2129 PB L 70222 — Preparation of acrylic diisobutylamide. By Kleu. Jul 21, 1941. In German. 1.50

2130-2131 PB L 70222 — Preparation of polyacrylic hydroxyethylamide. By Kleu. Sep 24, 1941. In German. 1.50

2132 PB L 70222 — Preparation of acrylic diphenylamide. By Kleu. Dec 16, 1940. In German. 1.50

2133-2134 PB L 70222 — Preparation of β-chloropropionic diphenylamide. By Kleu. Dec 16, 1940. In German. 1.50

2135 PB L 70222 — See Frame 2119.

2136-2138 2149-2149A PB L 70222 — Preparation of acrylic diphenylamide and β-chloropropionic diphenylamide. By Corell. Nov 26, 1940. In German. 1.50

2139-2140 PB L 70222 — Preparation of acrylanilide. By Kleu. Sep 26, 1940. In German. 1.50
Frame 2140 is a duplicate of Frame 2139.

2141-2142 PB L 70222 — These frames are duplicates of Frames 2072-2073.

2143 PB L 70222 — Preparation of β-chloropropionic methylamide. By Corell. May 22, 1940. In German. 1.50

2144 2146 PB L 70222 — Preparation of acrylic methylamide. By Corell. Jun 8, 1940. In German. 1.50

2145 PB L 70222 — Preparation of β-chloropropionic ethylamide. By Corell. Jun 8, 1940. In German. 1.50

2146 PB L 70222 — See Frame 2144.

2147 PB L 70222 — Preparation of β-chloropropionic n-butylamide. By Corell. May 17, 1940. In German. 1.50

2148 PB L 70222 — Preparation of acrylic n-butylamide. By Corell. May 23, 1940. In German. 1.50

2149 PB L 70222 — See Frames 2136-2138.

2150-2151 PB L 70222 — Preparation of β-chloropropionic diisobutylamide. By Corell. Jul 16, 1940. In German. 1.50

2152 PB L 70222 — Preparation of β-chloropropionanilide. By Corell. Jul 16, 1940. In German. 1.50

2153 PB L 70222 — Preparation of acrylanilide. By Corell. Jul 16, 1940. In German. 1.50

2154-2155 PB L 70222 — Internal work schedule for the preparation of the acrylamides, methacrylamides, acrylic esters and methacrylic esters. By Corell. May 16, 1940. In German. 1.50

2156-2159 PB L 70222 — Internal distribution of work for the preparation and the further development of acrylic amides and esters. Aug 17, 1939. In German. 1.50

2160 PB L 70222 — Scheme of development for "Kogasin." Apr 29, 1944. In German. 1.50

2161-2172 PB L 70222 — N,N-Ethylene ureas. By Heyna. Apr 17, 1944. In German. 1.50

2173-2178 PB L 70222 — Alkylated empyreumatic oils and the Hydroxyethylation products. By Carl. Feb 22, 1943. In German. 1.50

2179-2181 PB L 70222 — Use of polyacrylic hydroxyalkyl amides for textile purposes. By Schulz and Corell. Nov 26, 1941. In German. 1.50

2182-2189 PB L 70222 — Production of N-chloro amides of higher molecular fatty acids and their reaction products. By Jakobs. Mar 17, 1939. In German. 1.50

2190 PB L 70222 — Industrial hygienic test of the sizing and finishing agent HS. 1/127 = polyacrylic hydroxyethylamide. Sep 16, 1943. In German. 1.50
Poor legibility.

2191 PB L 70222 — Claim with regard to overdue deliveries of monoethanolamine. By Greune. Sep 8, 1943. In German. 1.50

2192 PB L 70222 — Changed directions for the preparation of polyacrylic hydroxyethylamide (sizing agent HS. 1/127). By Klem. Jun 22, 1943. In German. 1.50

2193-2194 PB L 70222 — Test of polyacrylic hydroxyethylamide as to its suitability for making papers oil-resistant. By Greune. Jan 11, 1943. In German. 1.50

2195 PB L 70222 — Note belonging to a letter concerning sizing agent HS 1/127. By Corell. Jan 8, 1943. In German. 1.50

2196 PB L 70222 — Preparation of β-chloropropionyl chloride from acrylonitrile. By Corell. Jan 6, 1943. In German. 1.50

2197 PB L 70222 — Polyacrylic hydroxyethylamide compared with vinarol sizes. By Greune. Jul 22, 1942. In German. 1.50

2198 PB L 70222 — Note belonging to an inquiry. By Greune. Jun 16, 1942. In German. 1.50

2199-2208 PB L 70222 — Correspondence concerning the critical examination of compounds as moth preventatives. By Kränzlein. 1938. In German. 1.50

2209-2211 PB L 70222 — Note concerning the controversy about the invention of Igepon A and T. By Kränzlein. Apr 4, 1939. In German. 1.50

2212 PB L 70222 — Note concerning the calculation of the Igepon price. By Fitzky. Mar 13, 1939. In German. 1.50

2213-2219 PB L 70222 — Igepon from aminopropanesulfonic acid. By Kraker and Fitzky. Jan 27, 1939. In German. 1.50

2220-2221 PB L 70222 — Note concerning the use of the diethylene ureas, Gerlon II and HS. 1/169, as fixing agents for nitrocellulose lacquer on cellophane. By Greune. May 22, 1946. In German. 1.50

2222-2222A PB L 70222 — Processing results of textile finishing product H 7 of I. G. Farben. Sep 28, 1944. In German. 1.50

2223-2225 PB L 70222 — Industrial hygienic examination of finishing agent HS. 1/169. Sep 14, 1944. In German. 1.50
Reply to questionnaire of Frames 2230-2232.

2226-2227 PB L 70222 — Reduction of 2,4,6 trinitro-m-xylol. By Thiele. Jun 20, 1944. In German. 1.50

2228-2228A PB L 70222 — Critical examination of finishing agent HS. 1/169 with regard to its use for "Vistra." May 27, 1944. In German. 1.50

2229 PB L 70222 — Note concerning the state of production of m-xylol-2,4,6-tri-(ethylene urea). By Greune. Apr 6, 1944. In German. 1.50

2230-2232 (plus extra frame) PB L 70222 — Industrial hygienic examination of m-xylol-2,4,6-tri-(ethylene urea). By Greune. Dec 24, 1943. In German. 1.50
Questionnaire.

2233-2236 PB L 70222 — Examination of received samples with regard to their textile processing properties compared with HS. 1/105. By Bartl. Dec 2, 1943. In German. 1.50

2237-2238 PB L 70222 — Internal report on the products prepared by Dr. Bauer. By Bauer. Nov 26, 1943. In German. 1.50

2239-2241 PB L 70222 — Correspondence as to sample HS 1130. By Greune. 1943. In German. 1.50

2242-2245 PB L 70222 — Examination of m-xylol 2,4,6-tri-(ethylene urea) with regard to its textile processing properties in comparison with HS. 1/105. Jul 22, 1943. In German. 1.50
One frame is illegible.

2246-2248 PB L 70222 — Preparation of m-xylol 2,4,6-tri-(ethylene urea). By Weibezahn. Jul 10, 1944. In German. 1.50

2245 PB L 70222 — Reduction of 2,4,6-trinitro-m-xylol to 2,4,6-triamino-m-xylol and preperation of the hydrochloride. By Thiele. Feb 3, 1944. In German. 1.50

2250 PB L 70222 — Preparation of m-xylol triisocyanate. By Maennchen. Feb 5, 1944. In German. 1.50

2251 PB L 70222 — Preparation of m-xylol-2,4,6-tri-(ethylene urea) = finishing agent HS. 1/169. By Heyna. Feb 9, 1944. In German. 1.50

2252-2253 PB L 70222 — Listing and chemical constitution of Appretans which are registered and marketed. By Sönke. Aug 21, 1939. In German. 1.50

2254-2255 PB L 70222 — Note concerning the deficiencies of "Appretan" EM and EMW, appearing during their processing and proposals for overcoming them. By Freudenberger. Jul 3, 1939. In German. 1.50

2256-2261 PB L 70222 — Survey of the Appretans now available and a list of instructions for their processing. Jun 1939. In German. 1.50

2262-2264 PB L 70222 — Note of the patent department as to 'Appretan' EMV and KS. By Bergmann. May 11, 1939. In German. 1.50

2265-2271 PB L 70222 — Examinations of 'Appretan' EMV. By Monheim and Voss. Apr 22, 1940. In German. 1.50

2272-2274 PB L 70222 — Experiments for substituting Vinkol 5Na by the ammonium salt of Povimal 5t during the preparation of 'Appretan' EMV. By Probst. Apr 19, 1939. In German. 1.50

2275-2281 PB L 70222 — Process for the preparation of 'Appretan' EMV. (Co-polymer from vinylchloride and vinylacetate.) By Sänke and Probst. Mar 27, 1939. In German. 1.50

2282 PB L 70222 — Softener 185 or 185a and b compared with hydrophobing agent 1/92. By Greune. Dec 31, 1940. In German. 1.50

2283-2286 PB L 70222 — Patent situation of hydrophobing agent Hd 1/92. Nov 18, 1940. In German. 1.50

2287-2288 PB L 70222 — The condensation of chloral with toluene and chlorobenzene. By Scherer. Apr 29, 1943. In German. 1.50

2289 PB L 70222 — Note concerning the heating of food, etc., by means of calcium oxide or amalgamated granulated aluminum. By Carl. Aug 9, 1944. In German. 1.50

2290 PB L 70222 — Vibration mills. By Kiesskalt. Feb 6, 1943. In German. 1.50

2291-2303 PB L 70222 — Report of the first session of the processing department of I. G. Farben Hoechst/Main on January 1, 1943. By Bachmann. Feb 1943. In German. 1.50

2304-2306 PB L 70222 — Preparation of phenol-aldehyde resinous substances self hardening and adhesive on glass and glassy surfaces. Jun 2, 1944. In German. 1.50

2307-2309 PB L 70222 — Direction for the preparation of new compounds to be used as hardening agents for Asplit A. By Greune. Feb 29, 1944. In German. 1.50

2310-2311 PB L 70222 — Preparation of alkyl ethers of nitrophenols. By Franz Schütz. 1943. In German. 1.50
A pencilled notation on the report will not reproduce well.

2311-2313 PB L 70222 — Preparation of anthranilic acid and its derivatives. By Franz Schütz. 1943. In German. 1.50

2313-2316 PB L 70222 — Friedel-Craft reaction. By Franz Schütz. 1943. In German. 1.50

2316-2317 PB L 70222 — Action of sulfur chloride on anthracene. By Franz Schütz. 1943. In German. 1.50

2318-2320 PB L 70222 — Technical data on several heat transmitters. By Greune. Jun 7, 1943. In German. 1.50

2321-2349 PB L 70222 — Fluorine in organic chemistry. By Scherer. Jun 30, 1942. In German. 3.00

2350-2351 PB L 70222 — Preparation of fluorenone from fluorene and phenanthrene-quinone from phenanthrene. By Schlumbohm. Jan 14, 1939. In German. 1.50

2352-2353 PB L 70222 — Examination of the Tylose ME 7 problem. Nov 19, 1931. In German. 1.50

2354-2361 PB L 70222 — Report of X-ray photography tests with polyacrylamides. By Sänke. Mar 26, 1940. In German. 1.50

2362 PB L 70222 — Note concerning complaints of customers as to troubles appearing during the processing of Uresin B. By Weihe. Feb 17, 1941. In German. 1.50

2363 PB L 70222 — Direction for the preparation of Uresin B of higher viscosity. By Weihe. Feb 17, 1941. In German. 1.50

2364 PB L 70222 — Uresin B (commercial matters). By Kränzlein. Dec 19, 1940. In German. 1.50

2365 PB L 70222 — Proposals for the preparation of a higher-polymerized butyl-Uresin. By Kränzlein. Jul 28, 1941. In German. 1.50

2366-2368 PB L 70222 — Examination of Uresins with regard to their technical suitability. By Weihe. Feb 17, 1941. In German. 1.50

2369 PB L 70222 — Preparation of cyclohexanol-Uresin (Uresin C). By Weihe. Feb 6, 1941. In German. 1.50

2370-2372 PB L 70222 — The action of acetyl chloride and aluminum chloride on vinyl-methyl-ketone. By Vollmann. Nov 2, 1938. In German. 1.50

2373-2374 PB L 70222 — Proposals for the preparation of several compounds based on vinyl-methyl-ketone. By Kränzlein. Jul 22, 1938. In German. 1.50

2375 PB L 70222 — Preparation of 4,4'-diamino-diphenyl-dimethyl-methane. n. d. In German. 1.50

2376-2381 PB L 70222 — Effect of the temperature during the hydrogenation of 4,4'-diamino-diphenyl-methane to 4,4'-diamino-dicyclohexylmethane. By Schmid. Oct 7, 1942. In German. 1.50

2382-2391 PB L 70222 — Industrial hygienic examination of 4,4'-diamino-diphenyl-methane. By E. Gross and M. Bock. Sep 4, 1942. In German. 1.50
Report may not reproduce well.

2392-2394 PB L 70222 — Apparatus and process for the preparation of p,p'-diamino-diphenyl-dimethyl-methane. (Anilonbase.) By Holz. Oct 25, 1939. In German. 1.50

2395-2396 2398 PB L 70222 — Apparatus and process for the preparation of 4,4'-diamino-diphenyl-methane. By Deresser. Mar 17, 1941. In German. 1.50

2397 PB L 70222 — Calculation of the manufacturing costs for 4,4'-diamino-diphenyl-methane. Mar 13, 1941. In German. 1.50

2398 PB L 70222 — See Frames 2395-2396.

Miscellaneous Chemicals (contd)

PB L 70222-S. I. G. FARBENINDUSTRIE A. G., FRANKFURT AM MAIN, GERMANY. Naphthalene derivatives. (Literature up to January 1, 1937.) and Polyacrylic amides and esters. Finishing and sizing agents. (FIAT Microfilm Reel K 34, Frames 1706-2398, abstract cards) 1946. 128 p.
Price: Microfilm-$3.00 - Photostat-$9.00
Brief abstracts are presented of the individual items of Frames 1983-2398 of Microfilm Reel K 34 (PB L 70222), listed above. These abstracts were prepared by FIAT personnel in Germany.

PB L 73268. I. G. FARBENINDUSTRIE A. G., HOECHST, GERMANY. Survey on own products. (FIAT Microfilm Reel K 35, Frames 2399-3169) 1939-1943. 770 f.
Price: Microfilm-$6.00 - Enlargement print-$77.50
This FIAT microfilm reel contains reproductions of a number of issues of an internal I. G. publication, "Erfahrungsübersicht," of the years 1940, 1939, 1943, and 1942 (in that order; no year complete). They contain brief reports - usually several to a page - on experiences with materials produced by I. G. Farben A. G., and an index of these reports. Individual years, each consisting of 2-10 issues, may be obtained as individual items in enlargement print form. Please give PB and frame numbers when ordering an individual item. In German.

Frames	Title	Price
2399-2516 PB L 73268	Compilation of experiences of I. G. Farben, year 1940, No. 43, 44. In German.	$12.00
2517-2944 PB L 73268	Compilation of experiences of I. G. Farben, year 1939, No. 31-42. In German.	43.00
2945-3033 PB L 73268	I.G.-Erfahrungsübersicht (Compilation of experiences of I. G. Farben) year 1943, No. 58-60. In German.	9.00
3034-3169 PB L 73268	I.G. Erfahrungsübersicht (Compilation of experiences of I. G. Farben) year 1942, No. 54-57. In German.	14.00

PB L 73268-S. I. G. FARBENINDUSTRIE A. G., HOECHST, GERMANY. Survey on own products. (FIAT Microfilm Reel K 35, Frames 2399-3169, abstract cards) 1939-1943. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00
This item consists of abstract cards, prepared by FIAT personnel in Germany, describing the issues of "Erfahrungsberichte" arranged by years (as above), reproduced on Reel K 35, PB L 73268. The wording of the abstracts is the same for each of the four years, except for numbers.

PB L 74904. I. G. FARBENINDUSTRIE A. G., LEVERKUSEN, GERMANY. A collection of chemical reports. (FIAT Microfilm Reel T 19, Frames 3300-4014) 1931-1942. 715 f. Price: Microfilm-$6.00 - Enlargement print-$71.50
This FIAT microfilm reel contains reports on a variety of subjects in pure and applied chemistry, also correspondence and minutes of meetings in the same fields. The material may be divided into four sections, as indicated below. Individual sections will be available as enlargement prints; please include PB and frame numbers when ordering an individual section. The reports are all in German; a small part of the correspondence is in English.

Frames	Title	Price
3300-3607 PB L 74904	White pigments. 1936-1941. In German. This section contains reports concerning the production of titanium pigments and lithopone pigments, covering the scientific, technical, and commercial angles.	$31.00
3608-3634 PB L 74904	Improvement of cellulose. 1939. In German. Methods for treating cellulose are described; products obtained from cellulose are listed and described. (See also last section below.)	2.50
3635-3824 PB L 74904	Hydrocarbons. 1931-1938. In German. This section contains scientific and technical reports on new hydrocarbons, including minutes of meetings discussing them and business correspondence concerning them.	19.00
3825-4014 PB L 74904	Improvement of cellulose. 1936-1942. In German. This section contains reports on cellulose products like the second section above but also including techniques of further processing, machinery and instruments used therein, and business correspondence. Frames 4001-4014, containing graphs and photographs, have been reversed (mirror-like) in the reel.	19.00

PB L 73935. DR. RASCHIG G.M.B.H., LUDWIGSHAFEN, GERMANY. Reports on chemicals. (FIAT Microfilm Reel A 73, Frames 1-36) 1939-1943. 36 f. Price: Microfilm-$1.25 - Enlargement print-$4.00
This FIAT microfilm reel contains 11 reports on processes for various organic compounds. Individual reports, listed below, will be available as enlargement prints. Please include PB and frame numbers when ordering an individual item. In German.

Frames	Title	Price
1-2 PB L 73935	"Naviral S." 1941. In German.	$1.50
3-7 PB L 73935	"Dekorit" (cement). 1939. In German.	1.50
8-10 PB L 73935	"Vigorol spezial." 1940. In German.	1.50
11-12 PB L 73935	"Leukogen." 1943. In German.	1.50
13-14 PB L 73935	"Aligan" (adhesive). 1942. In German.	1.50
15-16 PB L 73935	Acetyl-butyl-xylene. 1942. In German.	1.50
17-18 PB L 73935	Hydrolysis of cyclohexylacetate. 1942. In German.	1.50
19-23 PB L 73935	Purification of an aqueous mixture of phenolic acids and pyridine bases by means of activated charcoal. 1943. In German.	1.50
24-29 PB L 73935	Adipic acid. 1941. In German.	1.50
30-31 PB L 73935	Oxidative decomposition of pyridine homologues. 1941. In German.	1.50
32-36 PB L 73935	Experiments for synthesis of pure pyridine. 1940. In German.	1.50

ELECTRICAL MACHINERY, EQUIPMENT, AND SUPPLIES

Communication Equipment

PB [illegible]87777. BEVERAGE, H. H. 3000 megacycle communication - Project PDRC-90. Covers period Jun 20, 1941 to Mar 1, 1942. (OSRD Rept 474). Mar 1942. 87 p.
Price: Microfilm-$3.00 - Photostat-$9.00.

Certain equipment operating in the neighborhood of 3000 Mc. was made available for this project by the NDRC. Additional accessory equipment was constructed by the contractor. With this equipment, propagation studies were made over land and over salt water. The results agreed with what would be expected from transmission at lower frequencies. Vertically polarized waves were found to have the best transmission over salt water, whereas over land there was little difference between vertical and horizontal polarization. It was found that these frequencies require a substantially optical line of sight between the transmitter and the receiver, as the signals are greatly absorbed by obstructions such as trees and houses. Also the signals disappear very quickly beyond the optical horizon. Power gains of 100 to 200 are obtainable with antennas of relatively small dimensions, making it practicable to operate communication circuits over distances of 15 to 20 miles with power on the order of one watt. This high gain results in beams of sharp directivity like a search light, which is desirable in some applications since it makes unauthorized interception more difficult. In other applications, where high directivity cannot be used, it is necessary to use considerably higher power to make up for the lower gain of the antennas. Since the characteristics discussed above are somewhat analogous to the characteristics of light, it appears that these frequencies should have advantages as a substitute for visual signalling, especially since the transmission is unaffected by haze, smoke or fog. Several possible applications are discussed, some of which were suggested by personnel from the Army and the Navy who witnessed a demonstration of two-way voice communication over a distance of 14.5 miles. Details of the equipment used are included and the characteristics and modifications made to improve these characteristics are discussed. Performed under contract OEMsr-32 by RCA Laboratories, Communications Section.

*PB L 81196. BIGGS, A. J. and others. Interrogation of Dr. Adolf Rechten: Testing of communication equipment. (BIOS Interrogation Rept 385). Feb 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
Dr. Adolf Rechten was employed by Siemens from 1937 to 1945 and during that period was engaged on a number of acoustic and at least one radar test. In nearly all if not all tests, the work of Dr. Rechten seems to have been that of routine testing and little information was forthcoming of a more fundamental nature.

*PB L 81330. CARSTEN, H. and BLACKBAND, H. T. Interrogation of Herr G. Werner, May 7, 1947. (BIOS Interrogation Rept 540). Jul 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
This interrogation was of a general nature as a preliminary to more detailed interrogation at Prescot at the factory of Messrs. B.I.C.C. Mr. Werner was chiefly concerned with: the laying of submarine cables; the design of telephone cable and accessories; and the design and installation of self-supporting cables. In this report the following matters were discussed: methods of making junctions; design of general purpose terminal boxes; and self-supporting cables.

*PB L 87901. CRAWFORD, J. W. C. and others. Plastics in German sound recording systems. (BIOS Final Rept 1379, Item 7, 22). Apr-May 1946. 121 p. Price: Microfilm-$4.00 - Photostat-$13.00
This report is concerned less with the electro-mechanical side of the process and more with aspects of interest to the plastics technologist. The following points are covered: discussion of magnetophone; coating of luvitherm to produce magnetophone tape LG; magnetophone band type C and L; production of gammaferric oxide; production of vinoflex MP 400; and discussion of luvitherm and allied subjects at Ludwigshafen; luvitherm manufacture at I. G., Gendorf, and Folienfabrik Fürth-Forchheim; luvitherm production by Dynamit A. G., Troisdorf; luvitherm calenders by Hermann Berstorff G.m.b.H; luvitherm machinery by Erwin Kampf, Bielstein-Mühlen; production of gramophone records by Deutsche Grammophon, Hannover; manufacture of Vollstoff K3, Degussa, Cologne; and tefi recording and reproducing system. Tefti G.m.b.H. photographs and drawings are attached.

*PB L 86703. FREENCDY, J. W. and others. Telegraph services. (BIOS Evaluation Rept 497). Mar 1946. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
Mention is made of large increase in automatic teleprinter exchange services, and nation-wide service providing dialling facilities from subscriber to subscriber. Latest system is Siemens No. 39 devised by Lorenz & Siemens.

*PB L 87905. HYDE, N. E. and others. Some aspects of electrical contacting materials and phenomena associated with the design of electro-mechanical devices used in German telecommunications equipment. (BIOS Final Rept 1276, Item 7). Mar-Apr 1946. 44 p. Price: Microfilm-$2.00 - Photostat-$5.00
The report contains the following data: contact phenomena and design; contact materials; powder-metallurgy products; relays; uni-selectors and two-motion switches; maintenance of telephone exchange equipment; and miscellaneous, such as moulded magnetic material, glass-to-metal seals, and individual glass-metal seals.

PB L 81604. INSTITUT POUR L'ENCOURAGEMENT DES RECHERCHES SCIENTIFIQUES DANS L'INDUSTRIE ET L'AGRICULTURE. Commission for the study of bases of power masts: Research carried out at the request of the Belgian Electric Communication Company in Brussels. n. d. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
This report discusses research work done in connection with foundations for power-line masts. In French.

*PB L 81686. MARRIOTT and others. Interrogation of Dr. Rudolf Hell, June 30, 1947. (BIOS Interrogation Rept 550). Aug 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
The main interest was printing telegraphy of which the Hellschreiber is a well-known and widely used example. Dr. Hell stated that a coding arrangement had been developed for use with 7-line Hellschreiber, operating on the multiple drum method to produce "random" code, which is then mixed with the traffic. A further interrogation on cipher devices is planned.

*PB L 86689. ROSS, W. Report on interrogation of Dr. Hermann Janssen. (High sensitivity receiving equipment "Wullenwever".). (BIOS Interrogation Rept 149). Sep 1946. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
As "Wullenwever" has already been the subject of considerable investigations, the present interrogation was confined in the main to questions of immediate interest to the author of this report, such as the ease of setting up, balancing, and adjusting.

PB L 73454. SIEMENS & HALSKE A.G., WERNERWERKE, MUNICH, GERMANY. Parts lists and drawings for portable telegraph and teletype equipment. (FIAT Microfilm Reel O 133, frames 969-1635). 1940-1942. 667f. Price: Microfilm -$6.00 - Enlargement prints -$67.00
This FIAT Microfilm reel consists of parts lists and drawings for portable a-c telegraph equipment WT 40 and parts lists and drawings for portable teletypewriter equipment T 41, the second part of which will be found in FIAT Microfilm Reel O 134, PB 73455, Frames 1636-1984. Individual items are listed below and will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
969-1492 PB L 73454	A-c telegraph equipment WT 40. 1940-1941. In German.	$42.50

1493-1635 Teletypewriter equipment T 41. 1941-
PB L 73454 1942. In German. 14.50

PB L 73454-S. SIEMENS & HALSKE A.G., WERNERWERKE, MUNICH, GERMANY. Parts lists and drawings for portable telegraph and teletype equipment. (FIAT Microfilm Reel O 133, frames 969-1635, abstract cards.) 1940-1942. 2p.
Price: Microfilm -$1.00 - Photostat -$1.00
Brief abstracts in English are given for the items in FIAT reel 033, PB L 73454.

PB L 73455. SIEMENS & HALSKE A.G., WERNERWERKE, MUNICH, GERMANY. Parts lists and drawings for teletypewriter equipment and teletype distortion meter. (FIAT Microfilm Reel O 134, Frames 1636-2158). 1940-1942. 523f.
Price: Microfilm -$6.00 - Enlargement prints -$52.50
This FIAT Microfilm reel consists of parts lists and drawings for portable teletypewriter equipment T 41, the first section of which will be found in FIAT Microfilm Reel O 133 PB 73454, Frames 1493-1635, and of parts lists and drawings for teletype distortion meter T mse 40. Individual items are listed below and will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
1636-1984 PB L 73455	Portable teletypewriter equipment T 41. 1941-1942. In German.	$35.00
1985-2158 PB L 73455	Teletype distortion meter T mse 40. 1940-1941. In German.	17.50

PB L 73455-S. SIEMENS & HALSKE A.G., WERNERWERKE, MUNICH, GERMANY. Parts lists and drawings for teletypewriter equipment and teletype distortion meter. (FIAT Microfilm Reel O 134, Frames 1636-2158, abstract cards). 1940-1942 3p. Price: Microfilm -$1.00 - Photostat -$1.00
Brief abstracts in English, prepared by FIAT personnel in Germany, are given for the items in the above reel, PB L 73455.

PB L 74815. SIEMENS & HALSKE A.G., MUNICH, GERMANY. Telegraph and telephone equipment. (FIAT Microfilm Reel O 131, Frames 1-475). 1936-1944. 475f. Price: Microfilm $5.75 - Enlargement prints.-$47.50
This FIAT Microfilm reel consists of brief descriptions, parts lists, drawings and wiring and circuit diagrams for telephone and telegraph equipment, etc. as listed below. Individual items will be available as enlargement prints only. The entire reel may be purchased in microfilm form for $5.75. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
1-35 PB L74815	Central station equipment for the location of approaching enemy aircraft and utilization of respective information ("Fluna"). 1944. In German.	$3.50
36-78 PB L 74815	Central station for telegraphic transmission of exact location of every aircraft. 1943. In German.	4.50
79-181 PB L 74815	German Reich telegraph system "40". 1936-1943. In German.	10.50
182-325 PB L 74815	German railway telegraph system. 1940-1942. In German.	14.50
326-346 PB L 74815	Device for the measurement of matching errors. 1945. In German.	2.50
347-384 PB L 74815	Oscillograph for damping measurements. 1943. In German.	4.00
385-414 PB L 74815	Carrier frequency telephone system with 15 channels. 1944. In German.	3.00
415-475 PB L 74815	Carrier frequency telephone system with 10 channels. 1944. In German.	6.50

PB L 81348. TEAL, E. E. Report of conference concerning Permoflux headphones. (Columbia Univ Div of War Res Rept D24/D38/R301). Apr 1943. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report covers a discussion concerning the tests made on the Permoflux moving coil headphones and steps that could be taken to increase their frequency range for the needs of the underwater sound work rather than be limited to the 4,000 cps. cut-off used for Army and Navy communications work.

PB L 85938. U. S. SIGNAL CORPS. Suppression of radio interference created by engine-generator units. (Manual SIG 461-1). Aug 1945. 129 p. Price: Microfilm-$4.00-Photostat-$13.00
This manual presents a standardized procedure for inspecting the application of, and conducting radio-interference tests on, the suppression systems applied to pilot models of engine generators. Pilot-test requirements and procedure are incorporated including directions for modifying pilot-test equipment and for conducting sensitivity tests. Forty-two sketches are included.

PB L 85941. VIEHMANN, H. Elimination of radio reception interference in aircraft (outline). (1. Intermediate report). (AAF T-2 Translation 575; ZWB FB 183/1). Apr 1946. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
This is a translation of the first intermediate report from "Deutsche Versuchsanstalt für Luftfahrt Dec. 15, 1934." The problem of the test series which was carried out at the DVL., was to furnish numerical data for each airplane installation component. This data was to give information on how far the component in question must be considered in respect to interference elimination, so that measures for elimination may be planned during production. Distribution of the field problems and a survey of the present results are discussed. For second intermediate report see PB 85942, AAF T-2 Translation 579, ZWB FB 183/2.

PB L 85942. VIEHMANN, H. Elimination of radio reception interference in aircraft. Second intermediate report. (AAF T-2 Translation 579; ZWB FB 183/2). Apr 1946. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00
This is a translation of the second intermediate report from "Deutsche Versuchsanstalt für Luftfahrt, Aug. 1935." The purpose of the investigations was already given in the first intermediate report, see PB 85941. This is a comprehensive report on the level of radio interference elimination in aircraft. Details can be found in the papers mentioned in the bibliography included in this report. Measures for interference elimination were made in the following fields: 1) interferer; 2) receiver; and 3) coupling between interferer and receiver. A description is given on how elimination was accomplished.

Electronics

PB L 74412. ALLGEMEINE ELEKTRICITAETS-GESELLSCHAFT, BERLIN. Electronic research reports. (FIAT Microfilm Reel GG-40, Frames 1-285). 1931-1941. 285f.
Price: Microfilm -$3.75 - Enlargement prints -$28.50
This FIAT Microfilm reel consists of 23 reports on laboratory research in electronics and allied fields as listed below. Individual items will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $3.75. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Electronics (contd)

Frames	Title	Price
1-8 PB L 74412	Adaptors for synchronous counters of vibration meters. 1931. In German.	$1.50
9-20 PB L 74412	Construction of grid circuits in high-power rectifiers and converters. 1933. In German.	1.50
21-24 PB L 74412	Cut-off produced by capacitor discharges in vacuum tubes controlled by voltage pulses. 1931. In German.	1.50
25-28 PB L 74412	Current-voltage characteristic curves of tubular iron reistances. 1933. In German.	1.50
29-35 PB L 74412	Basis for the final proposal for grid-controlled welding machines. 1934. In German.	1.50
36-47 PB L 74412	Application of choke coils as safety devices in rectifier installations. 1934. In German.	1.50
48-58 PB L 74412	Control devices for mine conveyors. 1935. In German.	1.50
59-69 PB L 74412	Investigation of frequency converters with flexible regulation. 1936. In German.	1.50
70-78 PB L 74412	Photoelectric investigation of Ag-O-Cs and Ni-Ba cathodes. 1937. In German.	1.50
79-90 PB L 74412	Construction of a converter with flexible regulation. 1937. In German.	1.50
91-134 PB L 74412	Delaying voltage surge caused by shorting in high-voltage rectifiers. 1937. In German.	4.50
135-149 PB L 74412	Examination of the arc developed by various currents; experiments in producing square waves in circuit-fed sinusoidal voltages. 1937. In German.	1.50
150-152 PB L 74412	Methods for increasing the luminescence of fluorescent screens. 1937. In German.	1.50
153-161 PB L 74412	Investigation of the effect of light on secondary emission of aluminum-selenium cathodes. 1937. In German.	1.50
162-179 PB L 74412	Final examinations of beat frequency converters. Oscillograms referred to in the report are missing. 1938. In German.	2.00
180-184 PB L 74412	Frequency converter reducing the input frequency by ratio 5:1. 1939. In German.	1.50
185-200 PB L 74412	Oscillator circuit investigation. 1939. In German.	2.00
201-209 PB L 74412	Investigation of breakdown strength of electrodes in disk sealed tubes. n.d. In German.	1.50
210-232 PB L 74412	Voltage multiplier circuits, especially for measuring and control purposes. 1940. In German.	2.50
233-255 PB L 74412	Review of investigations of electric hammers. 1940. In German.	2.50
256-265 PB L 74412	Measurements on the 3000 cps annealing equipment of the "Glyco" firm in Wiesbaden. 1940. In German.	1.50
266-271 PB L 74412	Separation of layers from metallic surfaces to be used for electron-microscopic examinations. 1940. In German.	1.50
272-285 PB L 74412	Investigation of a pulse generator. 1941. In German.	1.50

PB L 74608. BOSCH, ROBERT, G.M.B.H., STUTTGART, GERMANY. Laboratory reports on properties of insulating, magnetic and contact materials. (FIAT Microfilm Reel K 249, Frames 1656-2155). 1938-1941. 500f. Price: Microfilm - $5.75 - Enlargement prints -$50.00

This FIAT Microfilm reel consists of 54 laboratory reports dealing with research in the field of electric insulating materials, magnets and materials for the manufacture of high grade electric contacts. Drawings, graphs, photographs and diagrams are included. Individual items are listed below and will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $5.75. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
1656-1665 PB L 74608	Effect of cellulose fiber content on the quality of Bosch cable insulation "Resitex". 1938. In German.	$1.50
1666-1679 1682-1686 PB L 74608	Comparative examination of high-voltage leads especially as to their resistance to ozone. 1938. In German.	1.50
1680-1681 PB L 74608	Tests of various experimental high-voltage fuse connections. 1938. In German.	1.50
1687-1694 PB L 74608	Measurements of breakdown voltage on spark plugs by EVK. n.d. In German.	1.50
1695-1726 PB L 74608	Experiments with powder magnets made of "Anistahl". 1938. In German.	3.50
1727-1737 PB L 74608	Dielectric losses in bugle-voltage fuse connections. 1938. In German.	1.50
1738-1764 PB L 74608	Measurement of breakdown voltages. 1938. In German.	3.00
1765-1774 PB L 74608	Tolerance of priming pump parts. 1938. In German.	1.50
1775-1781 PB L 74608	Examination of various tungsten contacts from supplier A19. 1938. In German.	1.50
1782-1786 PB L 74608	High-voltage fuse connections. 1938. In German.	1.50
1787-1790 PB L 74608	Changes in "Anistahl" steel by storing with access to air. 1938. In German.	1.50
1791-1802 PB L 74608	Dielectric losses in high-voltage cables. 1938. In German.	1.50
1803-1809 PB L 74608	Breakdown voltage in spark plugs. P 352. n.d. In German.	1.50
1810-1822 PB L 74608	Corundum masses of higher heat conductivity. 1938. In German.	1.50
1823-1824 PB L 74608	"Resitex" insulation with pure cellulose fibers. 1938. In German.	1.50
1825-1834 PB L 74608	Measurement of breakdown voltage on coarse surface oxidized electrodes and spark plugs Ni 4 C 2 and Mo. 1938. In German.	1.50
1835-1838 PB L 74608	Measurement of thermal conductivity of plastics. 1938. In German.	1.50
1839-1840 PB L 74608	Properties of Ni 4 C2 and Mo electrodes. 1938. In German.	1.50
1841-1851 PB L 74608	Investigation of the creep in tungsten contacts. 1938. In German.	1.50
1852-1858 PB L 74608	Equipment for measuring the thermal conductivity of ceramics. 1938. In German.	1.50
1859-1865 PB L 74608	Magnetic scale for measuring the thickness of nickel layers on non-magnetic metals. 1938. In German.	1.50

1866-1873 1924-1935 PB L 74608 — Dielectric losses of high-voltage fuse connections. 1939. In German. 2.00

1874-1876 PB L 74608 — Examination of the creep of electric contacts. 1939. In German. 1.50

1877-1891 PB L 74608 — Wear and tear of starter carbons on commutators. 1939. In German. 1.50

1892-1897 PB L 74608 — Measurement of breakdown voltages on coarse oxidized electrodes. 1939. In German. 1.50

1898-1914 PB L 74608 — Dielectric losses of plastics. 1939. In German. 2.00

1915-1923 PB L 74608 — Tungsten contacts. 1939. In German. 1.50

1936-1959 PB L 74608 — Measurement of breakdown voltages. n.d. In German. 2.50

1960-1962 PB L 74608 — Measurement of breakdown voltages of coarse electrodes treated with sulfuric acid. 1939. In German. 1.50

1963-1967 PB L 74608 — Examination of tungsten contacts. 1939. In German. 1.50

1968-1971 PB L 74608 — Examination of chrome-nickel contacts with 4% mn. 1939. In German. 1.50

1972-1978 PB L 74608 — Plotting of spark voltage curves for various contact materials. 1939. In German. 1.50

1979-1984 1994-2004 PB L 74608 — Examination of platinum alloys as substitute for iridium. 1939. In German. 2.00

1985-1991 PB L 74608 — Spark voltage curve in dependence on the shape of the contacts. 1939. In German. 1.50

1992-1993 PB L 74608 — Creep depending on voltage. 1939. In German. 1.50

2005-2009 PB L 74608 — Measurement of breakdown voltage of sparkplug electrodes. 1939. In German. 1.50

2010-2013 PB L 74608 — Platinum alloys from the firm of Lief Siebert, Hannau. 1940. In German. 1.50

2014-2017 — Platinum alloys KM 111, KM 113 and KM 114. 1940. In German. 1.50

2018-2021 PB L 74608 — Examination of molybdenum as material for electric contacts. 1940. In German. 1.50

2022-2025 PB L 74608 — Dielectric losses of plastics and plasticizers. 1940. In German. 1.50

2026-2035 PB L 74608 — Examination of platinum alloys KM 122, KM 150 sintered, KM 153, KM 181 and KM 211. 1940. In German. 1.50

2036-2044 PB L 74608 — Examination of new platinum alloys Pkt 110, Pkt 114, Pkt 116 and Pl 89/20 and ceramor. 1940. In German. 1.50

2045-2047 PB L 74608 — Contacts of pure tungsten. 1940. In German. 1.50

2048-2052 PB L 74608 — Examination of electrode materials V 17-F 20, F 40 and F 60. 1940. In German. 1.50

2053-2061 PB L 74608 — Spark voltage curve of use contacts. 1940. In German. 1.50

2062-2063 PB L 74608 — Nickel for electrodes from Marelli, Italy. n.d. In German. 1.50

2064-2068 PB L 74608 — Platinum alloys KM 133, KM 240 and KM 241. 1940. In German. 1.50

2069-2072 2147-2151 PB L 74608 — Examination of the polarity of spark contact pieces. 1940-1941. In German. 1.50

2073-2089 2098-2116 PB L 74608 — Investigation of magnetic properties of "Anistahl" steel. 1940. In German. 4.00

2090-2093 PB L 74608 — Investigation of platinum alloys Pl 89/20 and PKT 118 from the firm of Lief Siebert Hannau. 1940. In German. 1.50

2094-2097 PB L 74608 — Examination of platinum alloys from the firm of Heimerle & Meule, Pforzheim. 1940. In German. 1.50

2117-2123 PB L 74608 — Platinum contacts Pt 5-b 1 from Lief Siebert, Hannau. 1940. In German. 1.50

2124-2137 2152-2155 PB L 74608 — Spark gap measurements. 1940. In German. 2.00

2138-2146 PB L 74608 — Automatic magnet quenching equipment. 1941. In German. 2.00

PB L 74609. BOSCH, ROBERT, G.M.B.H., STUTTGART, GERMANY. Research reports on paper capacitors. (FIAT Microfilm Reel K 246, Frames 1-691). 1936-1944. 691f.
Price: Microfilm -$6.00 - Enlargement print -$69.50
This FIAT microfilm reel consists of 58 laboratory reports on paper capacitors, metallizing processes, etc. Drawings, graphs, photographs, and tables are included. Individual items are listed below and will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
1-4 PB L 74609	High-vacuum measuring device. 1943. In German.	$1.50
5-11 PB L 74609	Reflection of vibration waves in flexible bars clamped at one end and the tension resulting from this reflection. 1942. In German.	1.50
12-19 PB L 74609	Calculation of the length of parabolic and elliptical arcs and paraboloid and ellipsoid surfaces. 1942. In German.	1.50
20-29 PB L 74609	Microscopic examination of uneven surfaces by means of light interference. 1942. In German.	1.50
30-35 PB L 74609	Apparatus for pressing paper capacitors. 1942. In German.	1.50
36-47 PB L 74609	Comparison between paper capacitor foils of Bosch and other manufactures by means of electron microscopes. 1942. In German.	1.50
48-64 PB L 74609	Examination of thyratrons in their capacity as interrupters. 1941. In German.	2.00
65-82 PB L 74609	Metallizing of dielectric materials. 1940. In German.	2.00
83-87 PB L 74609	Heat treatment of electrolytic capacitors before impregnation. 1940. In German.	1.50
88-98 PB L 74609	Examination of an oscillograph cooling arrangement. 1940. In German.	1.50
99-145 PB L 74609	Metal vaporization in a vacuum. 1939. In German.	5.00
146-166 PB L 74609	Investigation of zinc layers for electrolytic capacitors by electron deflection. 1939. In German.	2.50
167-187 PB L 74609	Magnetic shielding. 1939. In German.	2.50

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Electronics (contd)

188-191 PB L 74609 Magnetic lenses for electron microscopes. 1938. In German. 1.50

192-232 PB L 74609 Electron deflection. 1938. In German. 4.50

233-252 PB L 74609 Searchlight reflector with metallized layers. 1938. In German. 2.00

253-263 PB L 74609 Electron microscope. 1938. In German. 1.50

264-269 PB L 74609 Error in matching two capacitors caused by the Cardau joint between the standard and the tested capacitor. 1935. In German. 1.50

270-278 PB L 74609 Examination of metallic layers of paper capacitors by electron deflection. 1937. In German. 1.50

279-285 PB L 74609 Production of searchlight reflectors. 1937. In German. 1.50

286-289 PB L 74609 Production of searchlight reflectors by vaporization of silver. 1936. In German. 1.50

290-311 PB L 74609 Electron deflection. 1936. In German. 2.50

312-322 PB L 74609 Heat conductivity in anisotropic homogenous materials. 1936. In German. 1.50

323-326 PB L 74609 Capacity of a variable capacitor. 1935. In German. 1.50

327-334 PB L 74609 Sweep regulation in oscillographs. 1935. In German. 1.50

335-343 PB L 74609 Arc temperature determination by the density curve of its spectrograph. 1934. In German. 1.50

344-352 PB L 74609 Examination of a flashover counting apparatus. 1934. In German. 1.50

353-362 PB L 74609 Calculation of current conditions in a coil immediately after voltage application. 1934. In German. 1.50

363-368 PB L 74609 Capacitor paper with titanium dioxide admixture. 1935. In German. 1.50

369-371 PB L 74609 Paper for paper capacitors Pa 29 V 1. 1936. In German. 1.50

372-401 PB L 74609 Paper capacitor manufacture. 1936. In German. 3.00

402-405 PB L 74609 Comparison between Bosch paper capacitors and those patented by Dubilier. 1937. In German. 1.50

406-409 PB L 74609 Gas emission of paper capacitors. 1937. In German. 1.50

410-412 PB L 74609 Oil impregnation of metallized paper. 1937. In German. 1.50

413-416 PB L 74609 Examination of capacitor contacts. 1939. In German. 1.50

417-428 PB L 74609 Effect of impregnation on the waste percentage of paper capacitors. 1939. In German. 1.50

429-449 PB L 74609 Manufacture of paper capacitors with particular reference to waste percentage. 1939. In German. 2.50

450-453 PB L 74609 Resistance fluctuation between metallized paper and sprayed Pb -Sn contacts. 1940. In German. 1.50

454-457 PB L 74609 Examination of capacitors with sulfite paper. 1940. In German. 1.50

458-481 PB L 74609 Decoupled paper capacitors. 1940. In German. 2.50

481A-481 0 PB L 74609 Examination of a new type vaseline for capacitor treatment. 1940. In German. 1.50

482-499 PB L 74609 Production waste in manufacture of paper capacitors. 1940. In German. 2.00

500-523 PB L 74609 Lacquered capacitor paper from K Tornow, Dreden. 1940. In German. 2.50

524 PB L 74609 Report on lacquering dried capacitor paper. 1942. In German. 1.50

525-532 PB L 74609 Change in the manufacturing process for paper capacitors. 1942. In German. 1.50

533-571 PB L 74609 Examination of the physical properties of paper VAP 5104/1 gr. 1942. In German. 4.00

572-581 PB L 74609 New examination of lacquered paper from K. Tornow, Dresden. 1942. In German. 1.50

582-587 PB L 74609 Aluminum foil paper capacitor with "Clophen" impregnation. 1943. In German. 1.50

588-595 PB L 74609 Report on the manufacture and test of paper capacitors according to Schupp patent. 1943. In German. 2.00

596-599 PB L 74609 Dyeing of lacquer Fl 58 v 37 for paper capacitors. 1943. In German. 1.50

600-603 PB L 74609 Splicing of metal foils for paper capacitors. 1943. In German. 1.50

604-614 PB L 74609 Change from aluminum to zinc in the manufacture of capacitor foils. 1944. In German. 1.50

615-627 PB L 74609 Impregnation process for high-voltage capacitors. 1944. In German. 1.50

628-665 PB L 74609 New impregnation material for paper capacitors. 1944. In German. 4.00

666-669 PB L 74609 Deterioration of capacitor windings after long storage. 1944. In German. 1.50

670-678 PB L 74609 Paper capacitors from the Hydra firm. 1944. In German. 1.50

679-685 PB L 74609 Impregnation of paper capacitors. 1944. In German. 2.00

686-691 PB L 74609 Lacquered capacitor paper from the Benkert firm, Dresden. 1944. In German. 1.50

PB L 73695. ERLANGEN, GERMANY. UNIVERSITY. Research on selenium photocells and rectifiers. (FIAT Microfilm Reel CC 240, Frames 1-91). 1941-1945. 91f. Price: Microfilm -$1.75 - Enlargement print -$9.50

This FIAT microfilm reel consists of four papers on research in electrical properties of selenium as used in dry-disk rectifiers and photoelectric cells. Individual papers are listed below and will be available as enlargement prints only. The entire reel may be purchased in microfilm form for $1.75. Please include PB and frame numbers when orderin individual items from this microfilm reel. In German.

Frames	Title	Price
1-56 PB L 73695	Experimental examination of Schottky's theory of barrier layers: Measurements on selenium photocells and dry-disk rectifiers. Th.D. dissertation. 1941. In German.	$6.00
57-64 PB L 73605	Frequency dependent impedance of barrier layers in dry-disk selenium rectifiers. 1945. In German.	1.50

Electronics (contd)

65-68 PB L 73695 Resistance of selenium after heat treatment, n.d. In German. Includes English translation. 1.50

69-91 PB L 73695 The barrier layer in technical selenium rectifiers. 1944. In German. 2.50

PB L 73695-S. ERLANGEN, GERMANY. UNIVERSITY. Research on selenium photocells and rectifiers. (PIAT Microfilm Reel CC 240, frames 1-91, abstract cards). 1941-1945. 7p. Price: Microfilm -$1.00 - Photostat -$1.50
Abstracts in English are given of the papers in PB L 73695 above.

*PB L 87916. JOHNSON, K. and others. German radio frequency cables. (BIOS Final Rept 1324, Item 31). Sep-Oct 1945. 138 p. Price: Microfilm-$4.25 - Photostat-$14.00
A summary report on the investigation of thirty-four targets, in which it is concluded that while a great deal of useful information was collected, it does not reveal noteworthy advances in design, manufacture or testing of R. F. cables insofar as they bear on service problems.

RTP #2589

PB L 87459. MÜLLER, E. A. W. Portable equipment for industrial radiology. (Elektrotechnische Zeitschrift 62, No. 12 (Mar) 1941, p. 305-308. Translation). Mar 1941. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00
Wiring diagrams for X-ray appliances, tubes, and instruments for 2-pole operation are described. The single pole earthed apparatus for operating hollow anodes and in particular fine focus tubes are considered. Reference is also made to radiometers with direct indication for the measurement of wall-thickness, to dosimeters, counting tube apparatus and apparatus for measuring ray-protection. Photographs and diagrams are attached.

Miscellaneous

*PB L 87922. ASHFORD, B. O. and others. Steel sheathing of electric cables by the Hackethal process. (BIOS Final Rept 1570, Item 21/31). Apr 1947. 10 p. Price: Microfilm-$1.25 - Photostat-$2.00
This report by investigators looking for metallic substitutes for lead as a cable sheathing material deals with the technical details of the plant in its present stage of development and indicates the direction in which further development work may be necessary. A diagram is attached.

PB L 88155. DIPROSE, K. V. and THORPE, A. W. Interrogation of Prof. Robert Sauer: Special mathematical calculating machine (differential analyser). (BIOS Interrogation Rept 635). Oct 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
It was based on the wheel and disc integrator and had electrical transmission and torque amplification. The function tables were cylindrical drums and could be used for either input or output of graphical functions. As input tables the curve following was done by hand. The adders were mechanical, i.e. differential gears. Details of the electric circuits were not known to Prof. Sauer.

*PB L 96847. DUNCAN, J. R. M. and others. German cable industry. (BIOS Final Rept 1190, Item 22, 31). n. d. 88 p. Price: Microfilm-$3.00 - Photostat-$9.00
This report is based on visits to some of the largest cable-making firms in Germany and to most of the smaller ones and covers tinning, rubber, thermoplastics, cellulose lacquer, isotrax, and airplane ignition cables.

*PB L 87885. EDMUNDSON, D. and DEAN, J. Electrical tachometers, small generators and indicators. (BIOS Final Rept 1537, Item 9). Sep-Oct 1946. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00
This report is primarily arranged so that each type of apparatus, as produced in Germany, examined is collected together. A cross-reference of every firm visited is included, from which details of individual products can be immediately obtained. Certain of these were found to be of no interest and are so indicated with a reference to the most important products manufactured.

PB L 86850. FLARSCHEIM, C. H. Visit to Germany - Electric power. (BIOS Final Rept 38, Item 33). n. d. 94 p. Price: Microfilm-$3.25 - Photostat-$10.00
The report covers the following phases of the German industry: 220-kv. transmission system; high speed reclosure; line insulators; substations; circuit-breakers 110/220 kv.; in-door 6/30 kv. circuit-breakers; summary of German opinion on circuit-breakers; compressor systems for air-blast circuit-breakers; isolators; line traps for carrier; 220 kv. instrument transformers; and 220 kv. power transformers. Photographs and drawings are attached.

*PB L 86700. LLEWELYN, A. I. and MALVERN, T.R.E. Gyro units, instruments, servo motors remote compasses and accessories. (BIOS Evaluation Rept 487). Mar 1946. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
Only instrumental and allied electronic equipment was examined, and nothing of a new or novel character observed with the exception of the PATIN equipment and a quantity of infrared gear which might prove of interest as a source of supply to laboratories engaged in infrared development and testing.

*PB L 86709. LLEWELYN, A. I. Insulated wire. (BIOS Evaluation Rept 481). Mar 1946. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
The Germans had instituted a search for an insulated wire which would withstand high temperatures, occupy a minimum winding space and represent a saving in weight. The development eventually divided itself into two classes; the one using glass and asbestos covered wires for ground applications while for aircraft use development was directed to the production of suitable non-cracking, adhesive lacquers and the technique for applying them efficiently to fine gauge wires.

PB L 37288-T. MELHARDT, H. Electric strength of antenna installations in airplanes operating at high altitudes. (Translation of PB 37288). (AAF T-2 Translation 1106; ZWB FB 849, Translation). May 1947. 18 p. Price: Microfilm-$1.00 - Photostat-$2.00
For abstract of original German report, see v. 3, p. 471, this Bibliography.

*PB L 86701. WILLE, F. P. Zeit motor and Mess motor. (BIOS Evaluation Rept 548). Jul 1946. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
The report contains some information concerning two types of motors which have armatures without any rotating iron parts. The moving part consists of a cup shaped winding of copper coils supported at one end by a bakelized paper cylinder with the conductors cemented in a single layer to the cylinder in such a manner that the cup is rigid and transmits torque to the shaft through the bakelite spider.

PB L 88104. CARROLL, DANIEL J. Sources of coal in East Asia. (Supreme Commander for the Allied Powers Natural Resources Sect Preliminary Study 19). Dec 1947. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00

Both the bituminous and anthracite coals produced within Japan are of inferior quality from the standpoint of the steel and chemical industries. Improvement of the grade of coal used by these industries would contribute towards the industrial recovery of Japan. In the manufacture of coke for the steel industry, it was the practice before and during World War II to import a substantial amount of high-grade bituminous coal for mixture with coals mined in Japan. This coal was obtained from northern China, Manchuria, and Sakhalin. In the manufacture of calcium carbide and fertilizers, high-grade anthracite coal was imported from French Indo-China and later from Korea. In order partially to offset the cost of coal imports, Japan exported poorer-quality coals as a part of its trade program. Most of the coal exported went to Korea. Total imports of bituminous and anthracite coal reached a peak of slightly less than 10,000,000 metric tons during 1940 when Japan also reached the peak of its coal production.

PB L 70401. PHYSIKALISCH-TECHNISCHE REICHSANSTALT, BERLIN. Lubrication and lubricants. (PIAT Microfilm Reel CC 61, Frames 1-944) 1922-1944. 944 f. Price: Microfilm-$6.00 - Enlargement print-$94.50

This reel was prepared by PIAT investigators in Germany. 53 individual items are listed below and will be available as enlargement prints. The entire reel may be purchased as a microfilm for $6.00. Please include PB and frame numbers when ordering individual items. In German.

Frames	Title	Price
1-11 PB L 70401	Physikalisch-Technische Reichsanstalt. By Alfred Schulze. 1943. In German.	$1.50
12-20 PB L 70401	Technique of lubrication. By Heidebroek. Dec 17, 1938. In German.	1.50
21-44 PB L 70401	Technique of lubrication. By Erk. Apr 11, 1938. In German.	2.50
45-64 PB L 70401	Technique of lubrication. By K. Wolf and H. Harms. Apr 11, 1938. In German.	2.00
65-79 PB L 70401	Aging of lubricating oils. By Philippovich. Apr 11, 1938. In German.	1.50
80-114 PB L 70401	Technique of lubrication. By Heidebroek and Rumpf. Apr 11, 1938. In German.	3.50
115-129 PB L 70401	Wear of machine parts. By Siebel. Apr 11, 1938. In German.	1.50
130-178 PB L 70401	Synthetic lubricating oils. By H. Zorn. Dec 17, 1938. In German.	5.00
179-202 PB L 70401	Technique of lubrication. Dec 17, 1938. In German.	2.50
203-217 PB L 70401	Technique of lubrication. By Kluge. Mar 4, 1943. In German.	1.50
218-222 PB L 70401	Friction and material wear. By Holm. Mar 4, 1943. In German.	1.50
223-227 PB L 70401	Bearing shells of hard metal. By Heidebroek. Mar 4, 1943. In German.	1.50
228-235 PB L 70401	Frictional heat of raw materials. By Siebel. Mar 4, 1943. In German.	1.50
235-240 PB L 70401	Wire drawing. By Siebel. Mar 4, 1943. In German.	1.50
241-246 PB L 70401	Oil testing process. By v. Philippovich. Mar 4, 1943. In German.	1.50
247-264 PB L 70401	Sliding friction of solid bodies. By Wolf. Jun 29, 1943. In German.	2.00
265-266 PB L 70401	Wear of material by friction. By Kluge. Jun 29, 1943. In German.	1.50
267-278 PB L 70401	Non-metallic phase in metals. By Kramer. Jun 29, 1943. In German.	1.50
279-281 PB L 70401	Liquid mixtures. By Dunken. Jun 29, 1943. In German.	1.50
282-300 PB L 70401	Lubricating behavior of oil during starting friction. By Bartel. Feb 29, 1944. In German.	1.50
301-306 PB L 70401	Influence of the sliding speed on friction. By Kluge. Feb 29, 1944. In German.	1.50
307-309 PB L 70401	Friction wear of piston rings. By Philippovich. Feb 29, 1944. In German.	1.50
310-315 PB L 70401	Technique of lubrication. By Philippovich. Feb 29, 1944. In German.	1.50
316-322 PB L 70401	Peroxide content of oils. By Seelich. Feb 29, 1944. In German.	1.50
323-326 PB L 70401	Lubricating oil. By Herbert Jaisly. 1939. In German. From "Die Wärme", No. 3, pp. 43-44, 1939.	1.50
327-383 PB L 70401	Bearing friction. By Theodor Hanow. Dec 7, 1936. In German.	6.00
384-386 PB L 70401	RASCH, EWALD (Inventor). Bearing with reduced friction. Ger. patent 356 735, Class 47b, group 4, dated Jul 27, 1922. In German. Supplement to patent 356 734.	1.50
387-389 PB L 70401	RASCH, EWALD (Inventor). Method for reducing the stress of moving parts in machine bearings. Ger. patent 356 734, Class 47b, group 4, dated Jul 27, 1922. In German.	1.50
390-395 PB L 70401	Additive for high pressure lubrication. By E. Edler. 1944. In German. Reprint from "Oel und Kohle", 1944, 5/6, pp. 102-105.	1.50
396-413 PB L 70401	Pumping behavior of motor oils. By Helder. Jul 20, 1944. In German.	2.00
414-424 PB L 70401	Determination of the octane number. By E. Singer. Jun 23, 1941. In German.	1.50
425-438 PB L 70401	Lubrication and material wear. By Bochmann. Apr 22, 1943. In German.	1.50
439-451 PB L 70401	Lubrication as a boundary surface process. By Kluge. Aug 31, 1944. In German.	1.50

452-505 PB L 70401 — Evaluation factors of two-cycle engines. By Jaro Zeman. 1944. In German. From "Deutsche Kraftfahrforschung" No. 81, 1944, pp. 1-46. 5.50

506-537 PB L 70401 — Formation of mixtures in multi-cylinder Otto engines. By Franz Mramor. 1944. In German. From "Deutsche Kraftfahrforschung." No. 82, 1944, pp. 1-29. 3.50

538-581 PB L 70401 — Thermodynamic tests on Diesel engines. By Hand List. 1944. In German. From "Deutsche Kraftfahrtforschung." No. 79, 1944, pp. 1-39. 4.50

582-608 PB L 70401 — Measurement of the lubricating properties of lubricants. By Johannes Kluge. 1942. In German. From the "Mitteilungen der deutschen Akademie der Luftfahrt-forschung," No. 6, 1942, pp. 299-323. 3.00

609-632 PB L 70401 — Molecular-physical processes in lubrication. By Johannes Wolf. 1942. In German. From the "Mitteilungen der deutschen Akademie der Luftfahrtforschung." No. 6, 1942, pp. 325-348. 2.50

633-638 PB L 70401 — Mixture formation and combustion in the Diesel engine. By W. Pauer. Oct 1, 1940. In German. From "Deutsche Kraftfahrtforschung." 1.50

639-646 PB L 70401 — Diesel engine with two types of fuel. By Potthoff. n. d. In German. From "Deutsche Kraftfahrtforschung." 1.50

647-662 PB L 70401 — Diesel engine with two types of fuel. By Eixmann. n. d. In German. From "Deutsche Kraftfahrtforschung." 2.00

663-676 PB L 70401 — Efficiency and course of combustion in the Diesel engine. By List. n. d. In German. From "Deutsche Kraftfahrtforschung." 1.50

677-679 PB L 70401 — Supercharging of Diesel engines in vehicles. By Ernst. n. d. In German. From "Deutsche Kraftfahrtforschung." 1.50

680-696 PB L 70401 — Formation and combustion of fuel-air mixtures. By Blume. n. d. In German. From "Deutsche Kraftfahrtforschung." 2.00

697-729 PB L 70401 — Influence of the mixture formation and combustion on losses in combustion engines. By Ullmann. n. d. In German. From "Deutsche Kraftfahrtforschung." 3.50

730-746 PB L 70401 — Character of the injected fuel at injection into Diesel engines. By Oschatz. n. d. In German. From "Deutsche Kraftfahrtforschung." 2.00

747-752 PB L 70401 — Measurement of the ignition delay in Diesel engines. By Ernst. n. d. In German. From "Deutsche Kraftfahrtforschung." 1.50

753-756 PB L 70401 — Diesel engine with laterally controlled valves. By Ernst. n. d. In German. From "Deutsche Kraftfahrtforschung." 1.50

757-794 PB L 70401 — Test engine for light fuels. n. d. In German. 4.00

795-823 PB L 70401 — Diesel test engine for Diesel fuels. 1940. In German. 3.00

824-840 PB L 70401 — Control of D. C. motors. By C. Moerder. Jul 3, 1943. In German. Special reprint from the Archives for Electrical Engineering, pp. 571-587, Jul 3, 1943. 2.00

841-896 PB L 70401 — Traces of electric arcs applied to metals for a short period of time. By Hans Roth. Nov 10, 1939. In German. 6.00

897-944 PB L 70401 — Determination of the size of smallest particles by X-rays. By Günter Freyer. Jun 15, 1939. In German. 5.00

PB L 70401-S. PHYSIKALISCH-TECHNISCHE REICHSANSTALT, BERLIN. Lubrication and lubricants. (PIAT Microfilm Reel CC 61, Frames 1-944, abstract cards) 1922-1944. 53 p. Price: Microfilm-$2.00 - Photostat-$4.00
Brief abstracts of the individual items on the above reel, CC 61, PB L 70401, prepared by PIAT personnel in Germany.

PB L 88970. U. S. WAR DEPARTMENT. Coal handling. Repairs and utilities. (Tech Manual 5-675). Apr 1947. 89 p. Price: Microfilm-$3.00 - Photostat-$9.00

MACHINERY (EXCEPT ELECTRICAL)

PB L 88101. ANGUS, E. J. Oil seals. Interrogation of Herr W. Sizmer. (BIOS Interrogation Rept 661). Dec 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
It appears that fundamental research into the behavior of the oil film between the sealing surfaces has not been pursued in Germany to the stage reached in Great Britian. Reference is made to BIOS Final Rept. No. 164 (PB 18936, v. 1, p. 1329 this Bibliography).

*PB L 86485. BARTLE, C. and FRAZER, R. F. Woodworking machinery methods and construction as applied to the furniture trade. (BIOS Final Rept 1437, Item 31). Oct-Nov 1946. 56 p. Price: Microfilm-$2.25 - Photostat-$6.00
Seven targets were visited and are reported individually. Photographs of various machines appear in each report.

*PB L 86487. BOWLEY, H. and BARRELL, H. Machine tools and instruments. Interrogation of Dr. Reuthe. (BIOS Interrogation Rept 628). Sep 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
Dr. Reuthe was questioned concerning the manufacture of slip gauges and surface finish researches in Germany. On machine tool development generally, Dr. Reuthe did not appear to have any worthwhile information.

PB L 86037. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. Electric refrigerators. Interrogation of Dr. J. H. Dannies. (Interrogation Rept 553). Aug 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
The production and running costs of absorption and compressor types of refrigeration are compared. Also mention is made of an evaporation system used to cool a house.

*PB L 88094. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. Machine tools. Interrogation of W. Meyer. (Interrogation Rept 675). Dec 1947. 3 p. Price: Microfilm-$1.00- Photostat-$1.00
Three different methods and types of machines are mentioned for the production of twist drills. He also touched upon the subject of thread rolled taps and hob grinding.

*PB L 86489. CODE, A. R. and others. German test equipment for materials and vehicle components. (BIOS Final Rept 268, Item 19). Sep 1945. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00
The report concerns itself mainly with static and dynamic strength of materials testing machines, engine dynamometers and special equipment for providing extreme temperatures and high altitude conditions. The machines were discussed with representatives of both testing machine makers and commercial users of the machines. A general summary and conclusions are given; this is followed by reports on the individual visits, each with its own summary.

*PB L 86719. DANIELS, J. L. and CRAIG, W. Callender roll. (BIOS Evaluation Rept 564). Jul 1946. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
A visit to Joseph Eck, Burgunderstr. 29, Heerdt-Dusseldorf, concerning spherically mounted bearing used on their calender and mixing rolls to eliminate camber on the rolls.

PB L 87355. EDSTRAND, HANS. The test tunnel for ships' propellers at Aktiebolaget Karlstads Mekaniska Werkstad, Karlstad, Sweden. 1944. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00
The following points are discussed: physical explanation and the effects of cavitation; the cavitation coefficient; tests in the tunnel; electrical equipment; interpreting the test results; and examples of the application of cavitation curves. Diagrams and charts are included.

*PB L 81685. GRIFFITHS, EZER. Interrogation of J. H. Dannies. (BIOS Interrogation Rept 551). Aug 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
Dannies was questioned about refrigeration but very little information was divulged.

*PB L 87881. GRÖSCHEL, E. R. Development of loop-scavenged two-cycle high-speed compression ignition engines of small bore. (BIOS Final Rept 1391, Item 31). Sep-Nov 1946. 35 p. Price: Microfilm-$1.75 - Photostat-$4.00
Investigations at Messrs. Klöckner Humboldt Deutz A. G., Cologne, of small high speed loop scavenged two-cycle C. I. engines of Deutz design for data not covered in BIOS Final Rept. No. 343; PB 32157, v. 2, p. 807, this Bibliography and BIOS Final Rept. No. 584; PB 60922, v. 5. p. 298. Drawings and photographs attached.

PB L 85887. HAHNKAMM, ERICH. Reduction of disturbing vibration of shaft bearings for a constant exciting frequency. (David W. Taylor Model Basin Translation 39). Oct 1936. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
In this paper it is shown how one can reduce disturbing vibrations in a system excited by a periodic force of constant exciting frequency by coupling to it auxiliary masses. The relationships necessary for the calculation of suitable constants such as the magnitude of the auxiliary mass, its natural frequency, and the magnitude of the coupling are given. Ten figures are included.

PB L 85886. HAHNKAMM, ERICH. Reduction of foundation vibration for a variable exciting frequency. (David W. Taylor Model Basin Translation 40). Oct 1936. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
For damping disturbing vibrations one can use auxiliary masses coupled to the main system. In a previous paper of the author, see PB 85887, the investigation of forced vibration of a system excited at a constant frequency and its damping by means of an auxiliary mass was described. In this article the case of a variable exciting frequency is dealt with. Ten figures and a bibliography are included.

PB L 37319-T. HAMPP. Influence of design dimensions upon the operational performance of roller bearings. (Translation of PB 37319). (AAF T-2 Translation 604; ZWB FB 971, Translation). Jun 1946. 35 p. Price: Microfilm-$1.00 - Photostat-$3.00
For abstract of original German report, see v. 3, p. 875, this Bibliography.

PB L 86307. HERMAN, ISER. Undulated bushing guides tool for chamfering elliptical holes. (Reprinted from American Machinist, July 17, 1947). Jul 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
The method is explained in detail accompanied by drawings.

*PB L 86688. HEWITSON, H. B. and WASSELL, G. C. Development of bearings in gyro instruments. (BIOS Interrogation Rept 137). Sep 1946. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
Interrogation of Gerd Zoege von Mannteufel, Dipl. Ing., was made concerning his knowledge about air lubricated bearings, and similar pressure lubricated oil bearings, used in gyro instruments. Information obtained concerned work done by Dr. Gievers who used air lubricated bearings for the horizontal axis of the Polkreisel, a directional gyro for use in aircraft on flights in high altitudes. Dr. Gisvers used pressure-lubricated liquid bearings for large gunnery stabilizing gyros, and had experimented with cylindrical liquid bearings, probably in connection with gyros for submarines.

*PB L 86036. KENNY, E. J. A. and EDWARDS, H. Career in development of gas turbines. Interrogation of Werner Weissinger. (BIOS Interrogation Rept 586). Aug 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
The education, experience, and personal assessment of a German engineer is given.

PB L 87797. KERR, R. C. Water well drilling equipment. Jul 1942. 26 p. Price: Microfilm-$1.50 - Photostat-$3.00
Summary of data and experience with well drilling equipment for water wells, geological structure holes and seismograph shot holes in desert operation. A project of Engineer Board Desert Test Section, Thermal, California.

PB L 74675. KLÖCKNER - HUMBOLDT - DEUTZ A.G., COLOGNE, GERMANY. Experimental reports on diesel engines. (FIAT Microfilm reel L 100, Frames 1-660). 1935-1936. 660f. Price: Microfilm -$6.00 - Enlargement print - $66.00
This reel consists of 93 reports on the development and tests of diesel engines as listed below. Individual items will be available as enlargement prints only; the entire

Machinery (contd)

reel may be purchased in microfilm form for $6.00. Please include PB and frame numbers when ordering individual items. In German.

Frames	Title	Price
1-7 PB L 74675	Determining a close fit for the main bearing cap. 1935. In German.	$1.50
8-9 PB L 74675	Screwing of steel pins into silumin Gamma material. 1935. In German.	1.50
10-11 PB L 74675	Starting tests with "Thermotor" air filter. 1935. In German.	1.50
12-17 PB L 74675	Fits on the crankshaft bearings of a "Rolls Royce" aircraft engine. 1935. In German.	1.50
18-20 PB L 74675	Special fuel of the "Nordwestdeutsche Kraftwerke A.G". 1935. In German.	1.50
21 PB L 74675	Airfilter tests. 1935. In German.	1.50
22-25 PB L 74675	Construction and operation of "Bernard" Engines. 1935. In German.	1.50
26-36 PB L 74675	Increasing the torque of an engine at low RPM. 1935. In German.	1.50
37-39 PB L 74675	Analysis of injection valve defects. 1935. In German.	1.50
40-41 PB L 74675	The "Hoog" magnetic oil filter. 1935. In German.	1.50
42-47 PB L 74675	Investigation of water circulating pumps. 1935. In German.	1.50
48-54 PB L 74675	Testing of injection valves. 1935. In German.	1.50
55-58 PB L 74675	Smooth operation at a low RPM factor. 1935. In German.	1.50
59-60 PB L 74675	Testing an engine operated with tar oil. 1935. In German.	1.50
61-66 PB L 74675	Investigation of a crankshaft assembly. 1935. In German.	1.50
67-87 PB L 74675	"Junkers" Diesel motor. 1935. In German.	2.50
88-96 PB L 74675	Flexural vibrations causing shaft breaks. 1935. In German.	2.00
97-99 PB L 74675	Test of a water circulating pump. 1935. In German.	1.50
100-109 PB L 74675	Apparatus for testing fuel pumps and fuels. 1935. In German.	1.50
110-113 PB L 74675	Performance test of a "Bosch" pump. 1935. In German.	1.50
114-119 PB L 74675	Test of two fans. 1935. In German.	1.50
120-122 PB L 74675	Test of fuel pumps. 1935. In German.	1.50
123-130 PB L 74675	Cold chamber tests for reducing fuel consumption. 1935. In German.	1.50
131-136 PB L 74675	Operation of the "Güldner" engine. 1935. In German.	1.50
137-142 PB L 74675	Investigation of the influence of laterally opened rotors with regard to the performance of a water circulation pump. 1935. In German.	1.50
143-145 PB L 74675	Tests of various mufflers. 1935. In German.	1.50
146-150 PB L 74675	Test stand investigations of a fuel pump and valve. 1935. In German.	1.50
151-157 PB L 74675	Eliminating poor combustion at increased RPM. 1935. In German.	1.50
158 PB L 74675	Exhaust pipe design for MAN 514 engine. 1935. In German.	1.50
159-161 PB L 74675	Determining the optimum carburetor adjustment. 1935. In German.	1.50
162-172 PB L 74675	Investigating a starter with regard to power and air consumption. 1935. In German.	1.50
173-176 PB L 74675	Influence of the cylinder head lining on engine power. 1935. In German.	1.50
177-181 PB L 74675	Investigation of an engine with excessive fuel consumption. 1935. In German.	1.50
182-187 PB L 74675	Examination of stationary air flow during scavenging of U-cylinder models. 1935. In German.	1.50
188-209 PB L 74675	Scavenging tests. 1935. In German.	2.50
210-213 PB L 74675	Scavenging investigation on a cylinder. 1935. In German.	1.50
214-221 PB L 74675	Injection by means of an oil pressure-operated floating shaft. 1935. In German.	1.50
222-224 PB L 74675	Injection tests with heavy Italian oil. 1935. In German.	1.50
225-234 PB L 74675	Modification requirements and operating instructions for an engine driven by generator gas or gasoline. 1935. In German.	1.50
235-237 PB L 74675	Test of a magnetic starter. 1935. In German.	1.50
238-248 PB L 74675	Investigation of an engine operated with coal, tar oil. 1935. In German.	1.50
249-251 PB L 74675	Experiments with Italian tar oil. 1935. In German.	1.50
252-256 PB L 74675	"Bosch" fuel pumps. 1935. In German.	1.50
257-262 PB L 74675	Investigation of a "DKW" motor type 200. 1935. In German.	1.50
263-264 PB L 74675	Investigating the filter of a lubricating oil pump. 1935. In German.	1.50
265-270 PB L 74675	Balancing on various chassis. 1935. In German.	1.50
271-275 PB L 74675	Injection cam for the purpose of eliminating the flash point adjustment. 1935. In German.	1.50
276-285 PB L 74675	Engine tests to obtain higher power at an increase from 1300 to 1500 RPM. 1936. In German.	1.50
286-295 PB L 74675	Comparison of various breather pipes. 1936. In German.	1.50
296-299 PB L 74675	Test of a standard MAN 526 engine. 1936. In German.	1.50
300-313 PB L 74675	Investigation of two diesel marine engines. 1936. In German.	1.50
314-328 PB L 74675	Ante chamber tests on an AGM 224 engine. 1936. In German.	1.50
329-336 PB L 74675	Spark plug tests. 1936. In German.	1.50
337-338 PB L 74675	Examination of various bearing metals. 1936. In German.	1.50

Machinery (contd)

339-343 PB L 74675 — Tests of "Derunapht" fuel. 1936. In German. 1.50

344-345 PB L 74675 — Investigation of manual starting with smaller flywheels. 1936. In German. 1.50

346-358 PB L 74675 — Power increase, shifting ease and safe starting at low temperatures. 1936. In German. 1.50

359-361 PB L 74675 — Starting tests at low temperatures. 1936. In German. 1.50

362-365 PB L 74675 — Fatigue stress investigations of thrust bearing in the RV6M 436 engine. 1936. In German. 1.50

366-377 PB L 74675 — Test of one engine with direct injection and another one with a pre chamber system. 1936. In German. 1.50

378-383 PB L 74675 — Investigation of increased engine power from 75 to 90 HP at 2000 RPM. 1936. In German. 1.50

384-389 PB L 74675 — Pressure regulation for fuel pumps. 1936. In German. 1.50

390-392 PB L 74675 — Determining the optimum fuel consumption at 1-1,5 HP and 2000 RPM. 1936. In German. 1.50

393-397 PB L 74675 — Experiments with "Derunapht" fuel oil. 1936. In German. 1.50

398-405 PB L 74675 — Engine investigations. 1936. In German. 1.50

406-428 PB L 74675 — Reverse scavenging. 1936. In German. 2.50

429-452 PB L 74675 — Slot pump. 1936. In German. 2.50

453-454 PB L 74675 — Starting tests in a cold chamber. 1936. In German. 1.50

455-457 PB L 74675 — Comparative measurements on an engine with reverse scavenging system. 1936. In German. 1.50

458-460 PB L 74675 — Power and fuel requirements of a compressor. 1936. In German. 1.50

461-464 PB L 74675 — Experiments with an engine operated with heavy oil. 1936. In German. 1.50

465-473 PB L 74675 — Determining the RPM factor and size of flywheels. 1936. In German. 1.50

474-480 PB L 74675 — Tests with Chinese fuel oil. 1936. In German. 1.50

481-483 PB L 74675 — Experiments with an engine for life boats. 1936. In German. 1.50

484-495 PB L 74675 — Tests of increased engine power from 90 to 110 HP. 1936. In German. 1.50

496-498 PB L 74675 — Investigation of a "Schnürle" supercharger under continuous operation. 1936. In German. 1.50

499-513 PB L 74675 — Analysis of injection data to determine the applicability of pumps for certain engines. 1936. In German. 1.50

514-524 PB L 74675 — Examination of operating qualities of a "Schnürle" supercharger. 1936. In German. 1.50

525-534 PB L 74675 — Mineral oil experiments. 1936. In German. 1.50

535-557 PB L 74675 — Increasing the tractive power of an engine. 1936. In German. 2.50

558-561 PB L 74675 — Experiences in the operation of radial pumps. 1936. In German. 1.50

562-566 PB L 74675 — Improving the tractive power of the F4M 517 engine. 1936. In German. 1.50

567-574 PB L 74675 — "Feroldi" diesel fuel carburetor. 1935. In German. 1.50

575-581 PB L 74675 — Comparison between a "Zenith" and "Deutz" carburetor. 1935. In German. 1.50

582-589 PB L 74675 — Investigation of an engine operated with heavy oil. 1935. In German. 1.50

590-593 PB L 74675 — Palm oil-operated engines. 1935. In German. 1.50

594-599 PB L 74675 — Varying the torque curve by modifying the pump feeding capacity. 1935. In German. 1.50

600-605 PB L 74675 — Manual starting tests. 1935. In German. 1.50

606-622 PB L 74675 — Influence of low pressure and the calorific value on engine performance. 1935. In German. 2.00

623-632 PB L 74675 — Truck operated with domestic fuels over various terrains. 1935. In German. 1.50

633-643 PB L 74675 — Mechanical behavior of a continually operated engine. 1935. In German. 1.50

644-646 PB L 74675 — Investigation of radiators manufactured by "Oberurseler-Kühlerwerke". 1935. In German. 1.50

647-660 PB L 74675 — Tests of Root's blowers. 1935. In German. 1.50

PB L 74678. KLÖCKNER - HUMBOLDT - DEUTZ A.G., COLOGNE GERMANY. Test reports on combustion engines. (FIAT Microfilm Reel L 103, Frames 2075-2750). 1941-1944. 676f. Price: Microfilm -$6.00 - Enlargement print - $68.00

This reel was prepared by FIAT investigators in Germany. 48 individual items are listed below and will be available as enlargement prints. The entire reel may be purchased as a microfilm for $6.00. Please include PB and frame numbers when ordering individual items. In German.

Frames	Title	Price
2075-2081 PB L 74678	Conversion of ordinary motors to ignition-jet operation with wood gas. 1941. In German.	$1.50
2082-2096 PB L 74678	Testings and improving of water cooling systems. 1942. In German.	1.50
2097-2106 PB L 74678	Installation and operation of gas generators. 1941. In German.	1.50
2107-2117 PB L 74678	Simplified conversion to ignition-jet operation. 1941. In German.	1.50
2118-2126 PB L 74678	Auxiliary cooling by evaporation. 1941. In German.	1.50
2127-2154 PB L 74678	Investigating an engine for Otto cycle anthracite gas operation. 1943. In German.	3.00
2155-2162 PB L 74678	Converting motors to ignition-jet operation. 1942. In German.	1.50
2163-2176 PB L 74678	Testing of "Bosch" and Bucher superchargers. 1942. In German.	1.50
2177-2181 PB L 74678	Testing of a special Diesel fuel without a fuel pump. 1942. In German.	1.50
2182-2185 PB L 74678	Determination of the minimum fuel quantity required for a fuel pump considering the ignition-jet process. 1942. In German.	1.50

Machinery (contd)

2186-2193 PB L 74678 Conversion to ignition-jet operation. 1941. In German. 1.50

2194-2207 PB L 74678 Ignition limitations of generator-gas-air mixtures. 1943. In German. 1.50

2208-2213 PB L 74678 Investigating the output of a wood gas engine and special devices for its operation. 1941. In German. 1.50

2214-2223 PB L 74678 Behavior of a motor with a Roots blower at exhaust counter pressure. 1943. In German. 1.50

2224-2236 PB L 74678 Testing of an Otto cycle dredge engine in connection with a gas generator. 1944. In German. 1.50

2237-2272 PB L 74678 Investigating a suction operated Hispano-Suiza aircraft engine. 1943. In German. 4.00

2273-2283 PB L 74678 Starting an "Otto" cycle engine with gas generator. 1943. In German. 2.00

2289-2294 PB L 74678 Charging of starter air bottles of gas operated "Otto" engines. 1943. In German. 1.50

2295-2300 PB L 74678 Motor operated with bituminous coal-tar oil. 1942. In German. 1.50

2301-2315 PB L 74678 Testing of various motors. 1943. In German. 1.50

2316-2322 PB L 74678 Comparative tests of water and air cooled Diesel engines with divided combustion. 1943. In German. 1.50

2323-2354 PB L 74678 Measuring of Roots blowers for higher counter pressures within an RU' range of 1000-2400m -1. 1943. In German. 3.50

2355-2360 PB L 74678 Change-over of a high compression Otto motor. 1942. In German. 1.50

2361-2366 PB L 74678 Testing of valve temperatures of a blocked motor power at various RU'. 1942. In German. 1.50

2367-2388 PB L 74678 Measurements of a Lysholm spiral gear compressor. 1943. In German. 2.50

2389-2400 PB L 74678 Investigating a "Diesel engine" with divided combustion. 1943. In German. 1.50

2401-2408 PB L 74678 Comparative fuel consumption and output measurements of various cylinder heads. 1942. In German. 1.50

2409-2415 PB L 74678 Determining connecting rod bearing forces. 1943. In German. 1.50

2416-2429 PB L 74678 Gas exchange operation of various combustion chambers. Effect of counter weights on power losses. 1942. In German. 1.50

2430-2440 PB L 74678 Testing of an improved magneto. 1942. In German. 1.50

2441-2447 PB L 74678 Ignition interruption control of Otto cycle gas motors. 1942. In German. 1.50

2448-2453 PB L 74678 Determining output and motor characteristics of converted engines. 1942. In German. 1.50

2454-2466 PB L 74678 Starting and converting of gas motors with gasoline. 1942. In German. 1.50

2467-2505 PB L 74678 Conversion of a Diesel engine to an anthracite gas operated Otto motor. 1942. In German. 4.00

2506-2510 PB L 74678 Conversion of single and two-cylinder "Oberursel" type motors. 1943. In German. 1.50

2511-2520 PB L 74678 Operation of "Oberu" motors with special fuels. 1942. In German. 1.50

2521-2524 PB L 74678 Starting charge for the "Bosch" injection pump. 1942. In German. 1.50

2525-2537 PB L 74678 Gasoline - alternating operation. 1943. In German. 1.50

2538-2543 PB L 74678 Use of special fuel for vehicles used for tropical combat missions. 1942. In German. 1.50

2544-2551 PB L 74678 Testing the cooling effect of various radiators used in the tropics. 1942. In German. 1.50

2552-2553 PB L 74678 Testing a "Hahnel" soldering lamp with leaded gasoline. 1942. In German. 1.50

2554-2559 PB L 74678 Investigating various spark plugs, differently arranged in the cylinder head of high-pressure "Otto" motors. 1942. In German. 1.50

2560-2562 PB L 74678 Operation with a new air exhaust valve. 1943. In German. 1.50

2563-2569 PB L 74678 Improvement of newly developed Diesel fuels. 1942. In German. 1.50

2570-2582 PB L 74678 Improvement in cooling of a cylinder head. 1942. In German. 1.50

2583-2601 PB L 74678 Testing a motor for stationary purposes and for operation of a ship. 1942. In German. 2.00

2602-2610 PB L 74678 Investigation of air scavenging blowers. 1942. In German. 1.50

2611-2750 PB L 74678 Laboratory reports on generator gas, tar oil gas and special Diesel fuels. 1942-1944. In German. 4.00

PB L 74633. KLÖCKNER - HUMBOLDT - DEUTZ, A.G., COLOGNE, GERMANY. Test reports on Diesel engines for vehicles. (FIAT Microfilm Reel L 101, Frames 661-1452). 1937-1941 692f. Price: Microfilm -$6.00 - Enlargement prints - $69.50

This reel was prepared by FIAT investigators in Germany. 44 individual items are listed below and will be available as enlargement prints. The entire reel may be purchased as a microfilm for $6.00. Please include PB and frame numbers when ordering individual items. In German.

Frames	Title	Price
661-670 PB L 74633	Determining the feeding capacity of a cooling water pump at various RU', suction lines and pressure resistances. 1938. In German.	$1.50
671-674 PB L 74633	Preventing the oil losses in motors. 1938. In German.	1.50
675-683 PB L 74633	Combustion tests with fuel from Iran. 1938. In German.	1.50
684-718 PB L 74633	Lubricating oil pump. 1938. In German.	3.50
719-724 PB L 74633	Clamping of plunger bushings on fuel pumps. 1938. In German.	1.50
725-732 PB L 74633	Investigating effect different mufflers on fuel consumption, exhaust temperatures, exhaust noise etc. 1938. In German.	1.50
733-738 PB L 74633	Optimal stability of an engine on a frame at various RU' and for different mountings. 1938. In German.	1.50
739-742 PB L 74633	Testing of various compressors with regard to charging time and output requirements. 1938. In German.	1.50
743-746 PB L 74633	xhaust manifold of two-cycle engines. 1938. In German.	1.50

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747-759 PB L 74633 Locomotive motor with turbo supercharger. 1938. In German. 1.50

760-762 PB L 74633 Exhaust under water. 1938. In German. 1.50

763-765 PB L 74633 Testing of "fuel oil domestique" supplied by Tarschak, Paris. 1938. In German. 1.50

766-770 PB L 74633 Investigating a cooling water pump. 1938. In German. 1.50

771-775 PB L 74633 Testing mufflers with regard to the sound damping effect. 1938. In German. 1.50

776-783 PB L 74633 Increasing the power of the FMM motor. 1938. In German. 1.50

784-790 PB L 74633 Lubricating oil pump and filter. 1939. In German. 1.50

791-794 PB L 74633 Tank cooling without rotary pump. 1939. In German. 1.50

795-813 PB L 74633 Lubricating oil piston pump. 1939. In German. 2.00

814-816 PB L 74633 Removal of dirt from the crankcase acquired during manufacture. 1939. In German. 1.50

817-820 PB L 74633 Lubricating oil filter in the suction stream. 1938. In German. 1.50

821-832 PB L 74633 Combustion tests with Iranian fuel. 1938. In German. 1.50

833-837 PB L 74633 Mixture preheating, ventilation of value covers. 1938. In German. 1.50

838-840 PB L 74633 100 hour run of automobile pumps and jets with "Rheinpreussen "Diesel oil. 1938. In German. 1.50

841-853 PB L 74633 Investigating the operating characteristics of a motor. 1939. In German. 1.50

854-861 PB L 74633 Scavenging tests. 1939. In German. 1.50

862-863 PB L 74633 "Deutz" fuel purifier. 1938. In German. 1.50

864-873 PB L 74633 Cooling water pumps. 1938. In German. 1.50

874-877 PB L 74633 "Deutz" reversing gear for ships. 1938. In German. 1.50

878-882 PB L 74633 Aluminum bearing. 1937. In German. 1.50

883-897 PB L 74633 Testing on engine having unusual features. 1938. In German. 1.50

898-901 PB L 74633 Smooth idling speed of an engine. 1938. In German. 1.50

902-911 PB L 74633 Testing various injection valves of a pump. 1937. In German. 1.50

912-928 PB L 74633 Breaking in of a new engine. 1937. In German. 2.00

929-945 PB L 74633 Cooling of the cooling fan; making it lighter and cheaper. 1937. In German. 2.00

946-959 PB L 74633 Determining the characteristic curve of cooling fans. 1938. In German. 2.00

960-963 PB L 74633 Bituminous coal tar oil for large engines. 1937. In German. 1.50

964-976 PB L 74633 Combustion tests with oil from the "Anglo Iranian Oil Co". 1937. In German. 1.50

977-979 PB L 74633 Hand starting tests. 1937. In German. 1.50

980-984 PB L 74633 Investigating the exchangeability of fuel pump parts by comparative measurements with ten fuel pumps. 1937. In German. 1.50

985-986 PB L 74633 Testing a fuel pump for a power plant. 1937. In German. 1.50

987-991 PB L 74633 Hydraulic safety governor. 1937. In German. 1.50

992-995 PB L 74633 Exhaust cooling process. 1937. In German. 1.50

996-1000 PB L 74633 Tests with a pneumatic governor for a motor. 1937. In German. 1.50

1001-1004 PB L 74633 Tests with Columbian fuel (heavy oil). 1937. In German. 1.50

1005-1009 PB L 74633 Comparative tests with a large and small muffler. 1937. In German. 1.50

1010-1014 PB L 74633 Fuel test with heavy oil from Rio de Janeiro. 1937. In German. 1.50

1015-1016 PB L 74633 Exhaust pipe design for two-cycle engines. 1938. In German. 1.50

1017-1023 PB L 74633 Scavenging tests for a newly developed line of engines. 1937. In German. 1.50

1024-1029 PB L 74633 Determining power loss and damping effect of various mufflers. 1937. In German. 1.50

1030-1035 PB L 74633 Cooling tests. 1937. In German. 1.50

1036-1053 PB L 74633 Tests with bituminous coal tar oil. 1938. In German. 2.00

1054-1056 PB L 74633 Compressed air governor. 1938. In German. 1.50

1057-1060 PB L 74633 Endurance test with fan V-belt. 1938. In German. 1.50

1061-1065 PB L 74633 Tests with "Leuna" fuel gas. 1938. In German. 1.50

1066-1068 PB L 74633 Feed control of a motor. 1938. In German. 1.50

1069-1070 PB L 74633 Investigating "Witag" fuel. 1938. In German. 1.50

1071-1074 PB L 74633 Analysis of the exhaust of Otto engines. 1938. In German. 1.50

1075-1076 PB L 74633 The stress on the spiral gear for the control and pump drive. 1938. In German. 1.50

1077-1079 PB L 74633 Examining various aluminum connecting rod bearings. 1938. In German. 1.50

1080-1089 PB L 74633 Heavy oil from Columbia. 1939. In German. 1.50

1090-1109 PB L 74633 Comparison of various cooling fans. 1939. In German. 2.00

1110-1112 PB L 74633 Bearing tests of "Falid D" material. 1938. In German. 1.50

1113-1119 PB L 74633 Improving the regulating effect by newly developed controls. 1939. In German. 1.50

1120-1123 PB L 74633 Cylinder head gasket. 1939. In German. 1.50

1124-1139 PB L 74633 Starter-flywheel moment for two-cylinder motors. 1938. In German. 2.00

1140-1156 PB L 74633 Investigating wear and tear of spiral gears. 1938. In German. 2.00

Machinery (contd)

1157-1163 PB L 74633 Preventing measures against sticking of piston rings. 1938. In German. 1.50

1164-1166 PB L 74633 Returning the overflowing fuel into the suction line. 1940. In German. 1.50

1167-1177 PB L 74633 Development of pre-injection valves. 1939. In German. 1.50

1178-1186 PB L 74633 Methods for increasing the power of a motor. 1939. In German. 1.50

1187-1188 PB L 74633 Lighter piston for a motor. 1939. In German. 1.50

1189-1192 PB L 74633 Antifreeze for motors. 1939. In German. 1.50

1193-1204 PB L 74633 Capsular nozzle. 1939. In German. 1.50

1205-1211 PB L 74633 Lubricating oil consumption and determination of the delivery rate for individual machinery points. 1939. In German. 1.50

1212-1226 PB L 74633 Regulating tests with a stabilizer. 1939. In German. 1.50

1227-1242 PB L 74633 Compressed air starting with a smaller flywheel. 1939. In German. 2.00

1243-1248 PB L 74633 Comparison between piston pins of solid and tubular material. 1940. In German. 1.50

1249 PB L 74633 Lubricating oil with a "Speed oil" addition. 1940. In German. 1.50

1250-1266 PB L 74633 Automatic spray adjustment. 1939. In German. 2.00

1267-1270 PB L 74633 Surface treatment of grey cast iron pistons. 1938. In German. 1.50

1271-1275 PB L 74633 Operating limitations of slowly running injection engines with oil which is difficult to ignite. 1938. In German. 1.50

1276-1290 PB L 74633 Scavenging air duct in the cylinder liner. 1941. In German. 1.50

1291-1309 PB L 74633 Investigating various scavenging ducts. 1938. In German. 2.00

1310-1319 PB L 74633 Compensating lubricating oil temperature of motors. Oil cooler investigations. 1938. In German. 1.50

1320-1322 PB L 74633 Oil bath air filter. 1938. In German. 1.50

1323-1325 PB L 74633 Sealing the crankshaft of cross-country vehicles. 1938. In German. 1.50

1326-1351 PB L 74633 Engine with injection pre-chamber. 1939. In German. 3.00

1352-1356 PB L 74633 Packing of a cooling water centrifugal pump. 1938-1940. In German. 1.50

1357 PB L 74633 Test with "Bosch" drop indicators. Supply controls. 1938. In German. 1.50

1358-1359 PB L 74633 Elimination of RPM fluctuations. 1938. In German. 1.50

1360-1361 PB L 74633 Decreasing the fuel consumption of a motor with 900 RPM. 1939. In German. 1.50

1362-1367 PB L 74633 Tests with fuel pump plunger bushings without pre-flow channel. 1939. In German. 1.50

1368-1399 PB L 74633 Scavenging air blower. 1940. In German. 3.50

1400-1452 PB L 74633 Comparison of two-stroke gas engines with two-stroke Diesel engines. 1941. In German. 5.50

PB L 85920. KRUG, C. Lightweight steel design of machine tools. (David W. Taylor Model Basin Translation 101). Jul 1942. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00

This is a translation of an article which appeared in the "VDI-Zeitschrift, Jan. 6, 1940," outlining the principle of lightweight steel construction of machine tools. The advantages of this type of design are demonstrated by means of a particularly instructive detailed example. These advantages are maximum rigidity combined with light weight, and speed in manufacture. Twenty figures, a table, and a bibliography are included.

PB L 87470. MCCARTHY, R. H. and others. Die casting at J. Duderstadt Metalwaren Fabrik, Esslingen and Mahle Werk, G.m.b.H., Fellbach. Jul 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

A description of a small die casting plant employing at the most 100 people working one shift. Most of their products are of the type of conventional automobile accessories. There were no novel features of operation.

*PB L 87897. PEEL, R. and others. German warp knitting industry and hypodermic tubing industry, including a report on some aspects of the German hosiery needle making machine industry. (BIOS Final Rept 1428, Item 22, 31). Jun-Jul 1946. 78 p. Price: Microfilm-$2.75 - Photostat-$8.00

Sixteen firms were visited covering the manufacture of: warp knitted hosiery; circular and flat knitting machines; needle making machines; sinkers; spinning; needle and hypodermic tubing; warp looms; and weft insertion. Photographs and drawings are attached.

*PB L 86717. STEVENS, W.C.I. Railway brakes. (BIOS Evaluation Rept 556). Aug 1946. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

Investigation of Gebrüder Hardy A. G., Vienna, with particular reference to compressed air operated brakes.

*PB L 81195. TEMPLE, W. K. Interrogation of Herr Buchols: Jig boring and thread grinding machinery. (BIOS Interrogation Rept 382). Feb 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

This man was employed as chief designer of the firm of Lindner, Witternau, Berlin until the year 1936 where he was concerned principally with the design of jig boring and thread grinding machines. After 1936 he was employed by Bauer and Schaurte, where he designed a thread grinder in many respects similar to Lindner. This report contains a brief description on jig boring machines, thread grinding machines (Lindner), and thread grinding machines (Bauer & Schaurte).

*PB L 86486. TIMS, C. Gear production problems. Interrogation of Dr. Ing. Heinz Miersig. (BIOS Interrogation Rept 640). Sep 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

Mention is made of the production and performance of gear drives with special reference to worm gears.

PB L 86607. U. S. WAR DEPARTMENT. Ditching machine, ladder-type, Crawler-mounted, gasoline digging depth 8 ft 3-in., width 24-in. Barber-Greene, model LL-c. (Tech Bulletin 5-1032-1). Dec 1943. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00

PB L 86640. U. S. WAR DEPARTMENT. Dryer, aggregate, single-drum, semi-trailer-mounted, pneumatic tires, 15 to 30-TPH, Barber-Greene, model 831 unit no. 2, asphalt and soil aggregate mixing plant. (Tech Bulletin 5-1280-2). Dec 1943. 28 p. Price: Microfilm-$1.50 - Photostat-$3.00

PB L 86558. U. S. WAR DEPARTMENT. Engine, Continental, R-975-C1: Interference of rocker box covers. (Tech Bulletin 9-1751-20). Oct 1944. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86551. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Continental model 22R engine. (Tech Bulletin 9-1795B-2). May 1945. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86661. U. S. WAR DEPARTMENT. Harrow, spike-tooth, 4 section, International Harvester, model Z. (Tech Bulletin 5-1030-1). Feb 1944. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 85697. U. S. WAR DEPARTMENT. Inspections and preventive maintenance services for ventilating, evaporative (desert) cooling and air-conditioning systems. (Tech Manual 5-672). Jul 1945. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86639. U. S. WAR DEPARTMENT. Mixer, asphalt, gasoline, engine-driven, repair plant, semi-trailer mounted, pneumatic tires, 15 to 30-TPH Barber-Greene, model 84L. Unit no. 1 of asphalt and soil aggregate mixing plant. (Tech Bulletin 5-1280-1). Dec 1943. 32 p. Price: Microfilm-$1.75 - Photostat-$4.00

PB L 86612. U. S. WAR DEPARTMENT. New parts and data for asphalt and soil aggregate mixing plant, gasoline engine-driven, 25-tons per hour 4-unit, Barber-Greene. (Tech Bulletin 5-1280-5). May 1944. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00

PB L 86608. U. S. WAR DEPARTMENT. New data and parts for conveyor, belt, transfer, gasoline engine-driven, 24-in. X 57 ft Barber-Greene style M. (Tech Bulletin 5-1010-1). Apr 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86611. U. S. WAR DEPARTMENT. New data and parts for ditching machine, ladder-type, Crawler-mounted, gasoline, digging depth 8-ft, width 18 to 24-in., Barber-Greene, model 44-C. (Tech Bulletin 5-1032-2). Jun 1944. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86610. U. S. WAR DEPARTMENT. New data and parts for dryer, aggregate, dual-drum, travel or central plant, trailor-mounted, 80 to 150 tons per hour, Barber-Greene, model 833. (Tech Bulletin 5-1004-1). Nov 1944. 22p. Price: Microfilm-$1.50 - Photostat-$3.00

PB L 86609. U. S. WAR DEPARTMENT. New data and parts for finisher, asphalt, crawler-mounted, 12-foot, Barber-Greene, model 879-A. (Tech Bulletin 5-1008-1). Mar 1945. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86606. U. S. WAR DEPARTMENT. New data and parts for tractor, crawler, Diesel, 70 to 90 DBHP, Standard or Rigid, International TD-18, 74-inch gauge. (Tech Bulletin 5-1280-1). Nov 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86638. U. S. WAR DEPARTMENT. New engine camshaft and carburetor for loader, aggregate, bucket, crawler-mounted, gasoline, 3-CUYD, 19 ft 10-in, boom (for use with dryer), Barber-Greene, model 82-AD, and 17-FT 4-in, boom, (for use with mixer), model 82-am, engine, Buda, model HP-326. (Tech Bulletin 5-1118-1). Apr 1944. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86682. U. S. WAR DEPARTMENT. Preventive maintenance services: Dryer, aggregate, dual-drum, travel or central plant, gasoline, trailer-mounted, 80 to 150 tons per hour, Barber-Greene, model 833, with Buda model HP-351 engine. (Tech Bulletin 5-1004-2). n. d. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86671. U. S. WAR DEPARTMENT. Preventive maintenance services: Dryer, aggregate, single-drum, semi-trailer-mounted, pneumatic tires, 15 to 30-ton per hour, Barber-Greene, model 831-105, with Leroi, model D-201-P3 engine (including Barber-Greene model 831-109 elevator). (Tech Bulletin 5-1280-7). May 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86677. U. S. WAR DEPARTMENT. Preventive maintenance services: Dryer, aggregate, single-drum, towed, pneumatic tires, 15- to 30-ton per hour, Barber-Greene, model 830-C, with Le Roi model D-201 engine. (Tech Bulletin 5-1281-1). May 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86680. U. S. WAR DEPARTMENT. Preventive maintenance services: Finisher, asphalt, crawler-mounted, 12-ft, Barber-Greene, model 879-A. (Tech Bulletin 5-1008-2). Feb 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86679. U. S. WAR DEPARTMENT. Preventive maintenance services: Loader, aggregate, bucket, crawler-mounted, gasoline, 3-CU YD, Barber-Greene, models 82-AT, 82-AL, and 82-AB, with Buda engine, models HP-217 and HP-298. (Tech Bulletin 5-1008-2). Jan 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86668. U. S. WAR DEPARTMENT. Preventive maintenance services: Mixer, asphalt, Diesel, travel or central plant, trailer-mounted, 110- to 200- tons per hour, Barber-Greene, model 848, with Buda Diesel model 6 DH-691 engine. (Tech Bulletin 5-1002-2). n. d. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

Machinery (contd)

PB L 86676. U. S. WAR DEPARTMENT. Preventive maintenance services: Mixer, asphalt, gasoline, repair plant, semi-trailer-mounted, pneumatic tires, 15- to 30-ton per hour, Barber-Greene, model 841-135, with Leroi model D-201-73 engine. (Tech Bulletin 5-1280-8). May 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86673. U. S. WAR DEPARTMENT. Preventive maintenance services: Mixer, asphalt, gasoline, repair plant, towed, pneumatic tires, 15 to 30 tons per hour, Barber-Greene, model 840-G, with Leroi model D-201 engine. (Tech Bulletin 5-1281-2). n. d. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86672. U. S. WAR DEPARTMENT. Preventive maintenance services: Mixer, soil preparation unit, gasoline engine driven, semi-trailer-mounted, pneumatic tires, 20 to 40-ton per hour, Barber-Greene, model 821-105. (Tech Bulletin 5-1280-6). May 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86678. U. S. WAR DEPARTMENT. Preventive maintenance services (operators daily services) for use with W.D. form no. 48: Ditching machine, ladder-type, crawler-mounted, gasoline, digging depth 8-ft, width 18 to 24-in., Barber-Greene, model 44-C. (Tech Bulletin 5-1032-3). n. d. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86669. U. S. WAR DEPARTMENT. Preventive maintenance services: Tractor, crawler, Diesel, 35 to 40-DBHP, International TD-9, 60-in. gage; 55 to 65-DBHP, International TD-14, 74-in. gage; 70 to 90-DBHP, International TD-18, 74-in. gage; Rigid or Standard, with (or without) attachments. (Tech Bulletin 5-3272-1). n. d. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86675. U. S. WAR DEPARTMENT. Preventive maintenance services: Tractor, crawler, gasoline, rigid or standard, with attachments, 10-35 DBHP, International T-6, 40-in. gage, and model T-6W, 50-in. gage; 36 to 45-DBHP, model T-9W, 60-in. gage. (Tech Bulletin 5-3222-1). May 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86674. U. S. WAR DEPARTMENT. Preventive maintenance services: Tractor, wheel-type, rubber tires, gasoline, 10 to 35-DBHP, International 1-6. (Tech Bulletin 5-3228-1). May 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86667. U. S. WAR DEPARTMENT. Rooter, road, lever-operated, 3-tooth, Austin-Western, model rip-rooter. (Tech Bulletin 5-1330-1). May 1944. 19 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86660. U. S. WAR DEPARTMENT. Stabilizer, soil, semi-trailer-mounted, with dolly, Barber-Greene, model 821, Unit no. 3, asphalt and soil aggregate mixing plant. (Tech Bulletin 5-1280-3). Dec 1943. 25 p. Price: Microfilm-$1.50 - Photostat-$3.00

PB L 86605. U. S. WAR DEPARTMENT. Sweeper, rotary-broom, tractor-mounted and powered, one-way sweeping, 30-in. x 7-ft, Hough, model K. (Tech Bulletin 5-3082-1). Jan 1944. 19 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86576. U. S. WAR DEPARTMENT. Tractor, high-speed, 13-ton, M5: Shearing of cap screws connecting fender side sheets to final drives. (Tech Bulletin 9-736-FGI). Nov 1944. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

*PB L 87911. WILSON, E. M. Tungsten carbide tipped percussion drill bits. (BIOS Final Rept 1644, Item 21, 31). May 1947. 25 p. Price: Microfilm-$1.50 - Photostat-$3.00

The plants of Krupp A. G. and Demag A. G. were visited to see the manufacture of the bits, and at the Rammelsberg mine at Goslar, details were obtained of their use.

MEDICAL RESEARCH AND PRACTICE, INCLUDING CLINICAL APPLICATION OF DRUGS AND PHARMACEUTICALS

PB M 73625. ERLANGEN, GERMANY, UNIVERSITY. A collection of doctors' theses. (FIAT Microfilm Reel P-85, Frames 2093-3004) 1939-1941. 903 f. Price: Microfilm-$6.00 - Enlargement print-$90.50.

The titles of the 68 theses reproduced on this FIAT microfilm reel follow below. Individual items will be available as enlargement prints. Please give PB and frame numbers when ordering particular theses from this reel. In German.

Frames	Title	Price
2093-2117 PB M 73625	Contributions to the bacteriology of the bile ducts in consideration of the clinical picture and of cases discussed in literature. By Walter Mackh. 1940. In German.	$2.50
2118-2131 PB M 73625	Metastases of carcinoma of the skin. By Heinrich Ludwig Madaus. 1940. In German.	1.50
2132-2137 PB M 73625	The possibility to influence the cholesterol content and cholesterolytic power of blood serum. By Siegfried Mainka. 1940. In German.	1.50
2138-2145 PB M 73625	Variations of the size of erythrocytes during gravidic anemia. By Otto Mertens. 1940. In German.	1.50
2146-2161 PB M 73625	The question whether the Wassermann reaction is rendered negative by salvarsan exanthemata. By Hanns Herbert Meyer Clemens. 1940. In German.	2.00
2162-2165 PB M 73625	Examination of the antigenic properties of a sol of cerebral lipoids by means of anaphylactic tests, with guinea-pigs. By Rudolf Miller. 1941. In German.	1.50
2166-2173 PB M 73625	Apoplectiform beginning of the multiform glioblastoma. By Hans Dietrich Neumann. 1940. In German.	1.50
2174-2183 PB M 73625	Abnormal hypertension after stimulation by cold as an early symptom of essential hypertonicity, under	

consideration of the question of hereditary factors. By Kurt Neumann. 1940. In German. 1.50

2184-2189 PB M 73625 — Serial examinations of the gastric juice of patients with healthy stomach. By Heinrich Nevermann. 1939. In German. 1.50

2190-2197 PB M 73625 — Damage done to bones by fatigue and overstrain. By Horst Niemann. 1940. In German. 1.50

2198-2204 PB M 73625 — Blood transfusions in the dysentry of children. By Walter Ostermann. 1941. In German. 1.50

2205-2211 PB M 73625 — Histidine excretion in the urine of pregnant women. By Ernst Jurgen Plotz. 1940. In German. 1.50

2212-2220 PB M 73625 — Investigations on diabetic coma under special consideration of symptoms of the stomach. By Helmut Prens. 1940. In German. 1.50

2221-2232 PB M 73625 — Endogenous psychoses of children. By Maria Preusser. 1940. In German. 1.50

2233-2243 PB M 73625 — Thrombosis of kidney veins, especially in children. By Fritz Recke. 1940. In German. 1.50

2244-2253 PB M 73625 — Constitutional biological considerations on the so-called striae of pregnancy. By Walter Ries. 1940. In German. 1.50

2254-2260 PB M 73625 — Comparative examination of the diuretic activity of some purine derivatives in white mice. By Karl Roggenkamp. 1940. In German. 1.50

2261-2266 PB M 73625 — External Pachymeningitis of the spine. By Friedrich Karl Rose. 1940. In German. 1.50

2267-2275 PB M 73625 — Symptomatology and pathology of the stenosis of the aquaeductus cerebri. By Hans Hermann Rudiger. 1940. In German. 1.50

2276-2285 PB M 73625 — Prognosis of pemphigus complicated by affection of the mucous membrane. By Paul Heinrich Saure. 1940. In German. 1.50

2286-2297 PB M 73625 — Treatment of rabbit syphilis with colloidal bismuth. By Karl Scharf. 1939. In German. 1.50

2298-2314 PB M 73625 — Contributions to genealogical research in cases of mongoloid idiocy. By Gottgried Schierbaum. 1940. In German. 2.00

2315-2318 PB M 73625 — Influence of Bacillus Bulgaricus on the fat content of Bulgarien curdled milk. By Lotte Schierbaum. 1940. In German. 1.50

2319-2326 PB M 73626 — A rare cause of intra-abdominal hemorrhage: rupture of an ovary due to malformation of the female genitals. By Heinz Werner Schlapkohl. 1939. In German. 1.50

2327-2334 PB M 73625 — Reliability of the blood corpuscle sedimentation reaction. By Walter Schonbeck. 1940. In German. 1.50

2335-2340 PB M 73625 — Blood sugar threshold after impact administration of adrenaline, sympatol and water. By Josef Schopnic. 1940. In German. 1.50

2341-2346 PB M 73625 — The possibility to evaluate anti-emetics in animal experiments. By Hans Joachim Schramm. 1940. In German. 1.50

2347-2352 PB M 73625 — Mode of action of mustard gas (dichlorodiethyl sulfide). By Heinrich Schroder. 1940. In German. 1.50

2353-2369 PB M 73625 — The question of necrotizing myelitis. By Friedrich Schulte. 1939. In German. 2.00

2370-2376 PB M 73625 — Sex proportion with congenital club-foot. Statistical examinations on new-born babies. By Wilhelm Seibert. 1941. In German. 1.50

2377-2388 PB M 73625 — Sequelae in 10 cases of coxa vara epiphysarea adolescentium based on re-examinations. By Bernhard Selmer. 1941. In German. 1.50

2389-2409 PB M 73625 — Findings of postmortem examination in cases of febrile hyperkinesia. By Kurt Stockinger. 1940. In German. 2.50

2410-2417 PB M 73625 — Pre-edema in pregnancy and in pregnancy toxicoses. By Lotte Sieger. By Lotte Sieger. 1940. In German. 1.50

2418-2428 PB M 73626 — Late injuries after delivery by forceps. By Hans Egon Siekmann. 1941. In German. 1.50

2429-2435 PB M 73625 — Contribution to the pathological features of follicular keratoses. A case of lichen pilaris universalis. By Heinrich Siemens. 1940. In German. 1.50

2436-2447 PB M 73625 — Two cases of dermatomyositis. By Herbert Spark. 1940. In German. 1.50

2448-2455 PB M 73625 — Air filling of the subarachnoid cavities in the encephalograph and its diagnostic significance. By Renate Spicker. 1940. In German. 1.50

2456-2462 PB M 73625 — Pulmonary mycoses. By Brigitte Spier. 1940. In German. 1.50

2463-2470 PB M 73625 — Antagonism of alcohol and some anthelminthics on muscle and nerve-muscle preparations of the earthworm and the leech. By Gunther Steinbach. 1940. In German. 1.50

2471-2478 PB M 73625 — Syphilis and sudor anglicus (sweating sickness) a comparative study. By Otto Stoohdorp. 1939. In German. 1.50

2479-2485 PB M 73625 — Influencing lipase activity by means of drugs. By Fritz Tegtmeyer. 1941. In German. 1.50

2486-2493 PB M 73625 — Kind, frequency, treatment, and therapeutical results in cases of stomatitis. By Helga Wahl. 1941. In German. 1.50

2494-2500 PB M 73625 — Late results of the treatment of complete perineal ruptures and their endangering by subsequent deliveries. By Irene Trotisch. 1941. In German. 1.50

2501-2510 PB M 73625 — Contribution to the etiology and pathogenesis of the gravidic polyneuritis. By Kurt Umlauft. 1936. In German. 1.50

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2519-2526 PB M 73625 — Comparative studies on the determination of the sedimentation of blood corpuscles with sodium citrate and potassium oxalate. By Bernhard Wallis. 1939. In German. 1.50

2527-2535 PB M 73625 — Gonococcus cultures in the moist chamber. Friedrich Wilcke. 1937. In German. 1.50

2536-2543 PB M 73625 — The question of mammary tuberculosis. By Peter Winkelmann. 1940. In German. 1.50

2544-2552 PB M 73625 — These frames have been removed from the reel.

2553-2560 PB M 73625 — The clinic of external pachimeningitis of the spine. By Karl Ludwig Worch. 1941. In German. 1.50

2561-2567 PB M 73625 — Influencing the purine metabolism by means of pharmaceuticals. By Fritz Ziemendorff. 1940. In German. 1.50

2568-2575 PB M 73625 — Influence of a stay in medium high mountains upon the tonicity of the skin capillaries. By Hubert Zilliken. 1938. In German. 1.50

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2639-2655 PB M 73625 — Significance of the little finger symptom and other symptoms of congenital syphilis. By Ernst Auner. 1941. In German. 2.00

2656-2667 PB M 73625 — Contributions to pathogenesis and symptomatology of endometriosis. By Berthold Becker. 1941. In German. 1.50

2668-2682 PB M 73625 — Significance of erosions of the portio uteri for the genesis of carcinomata. By Eva Bender. 1941. In German. 1.50

2683-2691 PB M 73625 — Methodics for the detection of signs of short-distance shots. By Helmut Beurer. 1940. In German. 1.50

2692-2700 PB M 73625 — Influence of alcohol in the Essen traffic accidents from Sep 1, 1937-Oct 31, 1939. By Rudolf Bispurg. 1941. In German. 1.50

2701-2708 PB M 73625 — Hernia of the umbilical cord with protrusion of intestines in new-born babies. By Bernhard Borsig. 1941. In German. 1.50

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2757-2775 PB M 73625 — Prolapsus of the omentum after gun shot injuries of the chest. By Friedrich Wilhelm Brüser. 1941. In German. 2.00

2776-2786 PB M 73625 — Acidity conditions of the stomach in various stomach diseases, with special consideration of ulcers. By Arnold C. Burg. 1941. In German. 1.50

2787-2798 PB M 73625 — Sarcoma of the connective tissue of the pelvis during childhood. By Ilse Calmbach. 1940. In German. 1.50

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2812-2823 PB M 73625 — Failures and erroneous results with Uhlenhuth's praecipitin test. By Hermann Dehoust. 1941. In German. 1.50

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2913-2923 PB M 73625 — Examination of school children by the school dentist for diagnosis of inhibited development in the lower jaw bone. By Otto Goebel. 1941. In German. 1.50

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2943-2957 PB M 73625 — Dependence of the liquor protein on the velocity and pressure of flow, and its clinical importance. By Ruth Handel. 1941. In German. 1.50

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2974-2990 PB M 73625 — Clinical features of spongioblastoma discussed on the basis of a special case. By Ernst Hartmann. 1940. In German. 2.00

2991-3004 PB M 73625 — Palatal Pituitary. By Fritz Hauss. 1941. In German. 1.50

PB M 74849. ERLANGEN, GERMANY, UNIVERSITY. A collection of doctors' theses. (FIAT Microfilm Reel P-76, Frames 2702-3574) 1939-1941. 873 f. Price: Microfilm-$6.00 - Enlargement print-$87.50. Titles of the 55 theses reproduced on this FIAT microfilm reel follow below. The theses will be available as enlargement prints. Please give PB and frame numbers when ordering individual items from this reel. In German.

Frames	Title	Price
2702-2719 PB M 74849	Experience and results of public pregnancy welfare of the gynecologic clinic of Berlin University in cases of syphilitic mothers and children. By Kurt Wehler. In German.	$2.00
2720-2739 PB M 74849	Contributions to the symptomatology of trigeminal neuralgias. By Heins Weidner. n.d. In German.	2.00
2740-2751 PB M 74849	Diagnostic significance of the anamnesis of hemorrhages in cases of extra-uterine pregnancy. By Herbert Wendel. n.d. In German.	1.50
2752-2763 PB M 74849	Solvitren therapy of thyreotoxicosis. By Gunter Wendlandt. n.d. In German .	1.50
2764-2771 PB M 74849	Fracture of the neck of the femur by function. By Hans Wengel. n.d. In German.	1.50
2772-2790 PB M 74849	Rupture of the symphysis during birth. By Gunter Werner. n.d. In German.	2.00
2791-2807 PB M 74849	Electrocardiograph studies on animals treated with Deriphylline after poisoning by agents of chemical warfare and showing injuries of the lungs. By Horst Werner. 1939. In German.	2.00
2808-2820 PB M 74849	Myoma and child-bed. By Hellmut Weski. n.d. In German.	1.50
2821-2833 PB M 74849	Localization of lodge bullets by x-rays and its surgical evaluation. By Herbert Weski. n.d. In German.	1.50
2834-2841 PB M 74849	Studies on the mechanical properties of the human sclera. By Hermann Wichhusen. 1940. In German.	1.50
2842-2856 PB M 74849	Statistics on carcinomata during the period from 1907-1936. From post-mortems of the pathological institute of the Horst-Wessel Hospital in Berlin. By Gerhard Wiechmann. n.d. In German.	1.50
2857-2869 PB M 74849	The symptomatology of umbilical hernias. By Hertha Wiemer. n.d. In German.	1.50
2870-2884 PB M 74849	Hyperglycemia after skull trauma. By Valentin Wies. n.d. In German.	1.50
2885-2892 PB M 74849	Flying tests on the problem of the toleration of high accelerations by airplane passengers accomodated in horizontal position. By Hans Wiesshofer. n.d. In German.	1.50
2893-2898 PB M 74849	Reduneulated rectum polypus with strangulation phenomena. By Oskar Wilhelm. n.d. In German.	1.50
2899-2912 PB M 74849	Accident and melanosarcoma. By Herbert Wilk. n.d. In German.	1.50
2913-2927 PB M 74849	Luxation fractures of the mandible and their treatment. By Helmut Wilke. 1940. In German.	1.50
2928-2938 PB M 74849	The respiratory enzyme carbonic anhydrase in the blood of healthy and sick people. By Heinrich Wille. n.d. In German.	1.50
2939-2962 PB M 74849	The causes of the frequent occurrence of calculus affections of the kidney during the last 8 years. By Hans-Joachim Wittige. 1939. In German.	2.50
2963-2974 PB M 74849	Social aspect of the problem of premature birth, examined with the help of 1448 premature deliveries in the Department of Gynecology, Berlin University during the years 1931-1935. By Senta Willmann. 1940. In German.	1.50
2975-2982 PB M 74849	Transfusions of preserved blood. By Horst Wilutzki. n.d. In German.	1.50
2983-3002 PB M 74849	Results of delivery by vaginal incision in the gynecological clinic of the Charité during 1929-1938. By Gertrud Einkelnkemper nee Fischer. 1940. In German.	2.00
3003-3007 PB M 74849	Decomposition of aliphatic ketones by surviving tissue. By Franz Winklhofer. 1940. In German.	1.50
3008-3012 PB M 74849	Effect of alcohol on the resistance to high attitudes examined by animal experimentation. By Kurt Wissmann. 1940. In German.	1.50
3013-3028 PB M 74849	Formation of spores by bacilli in shaked and non-shaked culture media at various temperatures. By Heinrich Wittich. n.d. In German.	2.00
3029-3047 PB M 74849	Treatment and loss of the umbilical cord in new borns. By Gerhard Wittlinger. n.d. In German.	2.00

3048-3067 PB M 74849 — The possibility of bone transplantation in surgery of the jaw. By Erhard Woesler. n.d. In German. 2.00

3068-3075 PB M 74849 — Capillary and centrifugation tests with inoculated rat tumors. By Charlotte Woite nee Schleussner. n.d. In German. 2.00

3076-3087 PB M 74849 — Addison's disease in children. Klaus Wrede. 1940. In German. 2.00

3088-3108 PB M 74849 — Further investigations on the behavior of the skin towards alkali. By Wilhelm Wrogemann. n.d. In German. 2.50

3109-3134 PB M 74849 — The thyreotropic hormone. By Robert Wuchenauer. 1939. In German. 3.00

3135-3150 PB M 74849 — Anastomoses between arteries and veins, and surgical diseases. By Helmut Wurker. n.d. In German. 2.00

3151-3162 PB M 74849 — Congenital changes in the position of the intestines and their surgical treatment. By Erich Wurbs. n.d. In German. 1.50

3163-3193 PB M 74849 — Contribution to the problem of blood relationship and eye diseases. By Kurt Zehe. n.d. In German. 3.50

3194-3213 PB M 74849 — Influence of pregnancy on the course of otosclerosis. By Hermann Zickgraf. 1940. In German. 2.00

3214-3225 PB M 74849 — Contribution to the knowledge of the structure of the "activity space" (haptic space). By Hans-Ulrich Ziebarth. 1940. In German. 1.50

3226-3239 PB M 74849 — Sclerosis of the coronary arteries and sudden heart death. By Karl Zimmerle. n.d. In German. 1.50

3240-3249 PB M 74849 — Disturbances in the blood-serum level in cases of scarlet-fever infections of adults. By Werner Albrecht. 1941. In German. 1.50

3250-3264 PB M 74849 — The symptomatology of pericarditis calculosa and accretio pericardii as sequelae of pericarditis. By Richard August. n.d. In German. 1.50

3265-3276 PB M 74849 — Sequelae of fractures of the malleolus. By Hans-Elmar Backhaus. 1941. In German. 1.50

3277-3294 PB M 74849 — Forceps in cases of breech presentation. By Hans Bauerle. n.d. In German. 2.00

3295-3315 PB M 74849 — Changes in the views on indication and results of primary and secondary resections in cases of gunshot injuries of the joint in the 19th and 20th centuries. By Otto Gerhard Baumgartel. n.d. In German. 2.50

3316-3333 PB M 74849 — Catamnestic examination of 402 patients sent in for observance, until then diagnosed to be schizophrenics. By Hans Becker. n.d. In German. 2.00

3334-3349 PB M 74849 — Cases of pernicious anemia with refractoriners of the liver. By Werner Behr. n.d. In German. 2.00

3350-3360 PB M 74849 — What diagnostic value is to be attributed to cholangiography? By Hans Detlef Behre. n.d. In German. 1.50

3361-3368 PB M 74849 — Ascorbic acid and Schultz-Dale's test. By Clemens Bembe. n.d. In German. 1.50

3369-3383 PB M 74849 — Chronic progressive chorea with atrophy of the cerebellum. By Gunther Birnbaum and others. 1941. In German. 1.50

3384-3403 PB M 74849 — Investigations on the resorption of rectally administered carbohydrates. By Gerd Bluhme. n.d. In German. 2.00

3404-3421 PB M 74849 — Observations on rabbits poisoned by green cross and anesthetized with pernocton. By Robert Blume. 1941. In German. 2.00

3422-3432 PB M 74849 — Nephritis in cases of acute rheumatic polyarthritis of children. By Wolfgang Bosenberg. n.d. In German. 1.50

3433-3455 PB M 74849 — Contribution to the etiology of the lipoidic nephrosis of children. By Anneliese Born nee Ochs. n.d. In German. 1.50

3456-3469 PB M 74849 — Infantile phimosis and its therapy. By Elisabeth Brake. n.d. In German. 1.50

3470-3502 PB M 74849 — Treatment and prospects in cases of spontaneous fractures. By Wolfgang Brandt. n.d. In German. 3.50

3503-3561 PB M 74849 — Medical foundations to the problem of tolerating treatment. By Wolfgang Bredtschneider. 1941. In German. 6.00

3562-3574 PB M 74849 — Osteochondritis dissecans in the knee-joint. By Franz Josef Bremer. n.d. In German. 1.50

PB M 84174. ERLANGEN, GERMANY, UNIVERSITY. A collection of doctors' theses. (FIAT Microfilm Reel D-158, Frames 5875-7021) 1940-1941. 1147 f. Price: Microfilm-$7.00 - Enlargement print-$116.00.
The 70 theses reproduced on this FIAT microfilm reel, titles of which are listed below, will be available as enlargement prints. Please include PB and frame numbers when ordering individual items from this reel. In German.

Frames	Title	Price
5875-5895 PB M 84174	A contribution to the knowledge of cystic tumors of the pericardium. By Karlheinz Wagner. 1940. In German.	$4.00
5896-5920 PB M 84174	Observations and clinical experience on the use of the plastic "Paladon" as a substitute material in dentistry, together with re-examinations of patients. By Lieselotte Walther. 1940. In German.	4.00
5921-5933 PB M 84173	Influencing the graph of alimentary blood alcohol values by insulin, thyroxine, and adrenaline. By Otto Warstat. 1941. In German.	3.00
5934-5945 PB M 84174	Thoracal traumata, caused by blunt instruments. By Hans W. Weber. 1941. In German.	3.00
5946-5955 PB M 84174	State of oxidation in intermediate metabolism with minimum protein	

values and vegetarian diet. By Heinz Weber. 1941. In German. 2.00

5956-5992 PB M 84174 — Late results of thoracoplasty in pulmonary tuberculosis. By Gerda Weishaupt. 1941. In German. 5.00

5993-5999 PB M 84174 — Increase of bodily efficiency by Pervitin. By Helmut Weissenstein. 1941. In German. 2.00

6000-6014 PB M 84174 — A contribution to the pathology of the function of the spinal column. By Hardtmut Werhoven. 1941. In German. 3.00

6015-6033 PB M 84174 — A contribution to the neurogenic tumors of the nose. By Wolfgang Weski. 1941. In German. 3.00

6034-6045 PB M 84174 — Contribution to the serological diagnosis of tertiary syphilis. By Werner Wiegand. 1941. In German. 3.00

6046-6061 PB M 84174 — Contribution to the question of health control, based on examinations for tuberculosis carried out in three villages of the "Grenzmark" (border territory) during the year of 1939. (Gross-, Klein-und Neubutzig, Kr. Flatow). By Heinz Wiegmann. 1941. In German. 3.00

6062-6073 PB M 84174 — Treatment of extensive gastric hemorrhages. By Karl-Heinz Wild. 1941. In German. 3.00

6074-6087 PB M 84174 — Injuries of the testicles and their sequelae. By Kurt Winkler. 1941. In German. 3.00

6088-6098 PB M 84174 — Treatment of arthrosis deformans and of other diseases by acetylcholine injections. By Käte Wittig. 1941. In German. 3.00

6099-6107 PB M 84174 — Causes and treatment of serious postoperative intestinal paralysis. By Hermann Wolf. 1941. In German. 2.00

6108-6114 PB M 84174 — Studies on the vitamin-C economy in physical hyperthermia. By Alfons Wrede. 1941. In German. 2.00

6115-6124 PB M 84174 — Thallium poisoning. By Wilhelm Zinn. n.d. In German. 2.00

6125-6139 PB M 84174 — Tumors in the mucous membrane of the uterus of sterile rabbits. By Sigfrid Zitzsperger . 1941. In German. 3.00

6140-6148 PB M 84174 — The glands of the human oral cavity. By Ruth Zuelke-Weitze. 1941. In German. 2.00

6149-6163 PB M 84174 — A case of sacral chordoma with special consideration of early diagnosis. By Ernst Adams. 1941. In German. 3.00

6164-6185 PB M 84174 — The results of the Aschheim-Zondek-reaction in Department of Gynecology, Bonn University. By Gertrud Aymanns. 1941. In German. 4.00

6186-6195 PB M 84174 — Infant mortality in the Olpe district. By Franz Joseph Beckmann. 1941. In German. 2.00

6196-6219 PB M 84174 — Observations in 10 cases of gynatresia (a criticism of the hormone therapy of gynatresia). By Elsbeth Bonzel. 1940. In German. 4.00

6220-6237 PB M 84174 — Contribution to the knowledge of the susceptibility to caries of blood-related individuals and their offspring. By Artur Büchner. 1940. In German. 3.00

6238-6253 PB M 84174 — Additional contribution to the question of pancreatic cysts. By Max Diepes. 1941. In German. 3.00

6254-6269 PB M 84174 — A special form of necrotizising paradentitis and the foundations of its treatment. By Adolf Dorn. 1940. In German. 3.00

6270-6296 PB M 84174 — Observations on patients with residual empyema cavities, made in the surgical clinic and the St. Johannishospital (St. John's hospital), Bonn, from 1920 - 1940. By Siegfried Dreckmann. 1941. In German. 4.00

6297-6305 PB M 84174 — The question of primary sarcomata of the renal pelvis. By Hilarius Engels. 1941. In German. 2.00

6306-6320 PB M 84174 — Causes of infant mortality in the Bonn district. By Joseph Eschweiler. 1940. In German. 3.00

6321-6345 PB M 84174 — Unfitness for work and invalidity caused by diseases of the stomach. By Reinald Fassbender. 1940. In German. 4.00

6346-6360 PB M 84174 — A typical formation of metastases in the supraclavicular glands and in the os naviculare pedis after carcinomata of the collum uteri. By Joseph Franke. 1940. In German. 3.00

6361-6388 PB M 84174 — Therapeutic measures and results in operations of the meniscus of miners. (108 cases, observed in the protestant hospital, Hamborn, from 1931-1938). By Josef Franzen. 1940. In German. 4.00

6389-6405 PB M 84174 — Causes of infant mortality in the Prüm district. By Josef Frieden. 1940. In German. 3.00

6406-6429 PB M 84174 — Investigations on the Ca-content of saliva and disposition to caries. By Ferdi Froning. 1941. In German. 4.00

6430-6447 PB M 84174 — Cases of congenital luxation of the hip joint at the university clinic Bonn, from 1896 - 1932 with special consideration of the therapy. By Heinz Fuss. 1940. In German. 3.00

6448-6463 PB M 84174 — Infant mortality and health conditions during early childhood and schoolage in the Grevenbroich-Neuss district. By Heinrich Gastweiler. 1940. In German. 3.00

6464-6471 PB M 84174 — Coagulation of blood under the influence of gases. By Fritz Geller. 1941. In German. 2.00

6472-6486 PB M 84174 — A case of bilateral cancer of the mamma. By Bernd Gruss. 1941. In German. 3.00

6487-6497 PB M 84174 — Pancreatic cysts, their differential diagnosis and further diagnostic possibilities. By Heinz Heidelberg. 1941. In German. 3.00

6498-6512 PB M 84174 — Methods and previous results discussed in connection with the problem of bronchial peristalsis. By Anneliese Hörster. 1941. In German. 3.00

6513-6542 PB M 84174 Contribution to the problem of pellagra. By Maria Hoffmann. 1940. In German. 4.00

6543-6551 PB M 84174 Diabetes and war. By Josef Holtzen. 1941. In German. 2.00

6552-6565 PB M 84174 Contribution to the biology and pathology of the plasmodium gallinaceum (Brumpt). By Ludolf Jacobi. 1940. In German. 3.00

6566-6577 PB M 84174 Differential diagnosis of the saroma of the tongue. By Hans Kaelelitz. 1940. In German. 3.00

6578-6598 PB M 84174 Infant mortality due to infectious diseases as whooping cough, measles, scarlet fever and diphtheria, in the province of Pommern. By Walther Kayser. 1940. In German. 4.00

6599-6611 PB M 84174 Bloodgroup examinations in a village of the Eiffel mountains. A contribution to the question of the inheritance of the blood groups and factors ABO and MN and their distribution among the population. By Hans Kerkhoff. 1940. In German. 3.00

6612-6629 PB M 84174 The causes of infant mortality in the greater district Geilenkirchen-Heinsberg. By Leonhard Keuter. 1941. In German. 3.00

6630-6638 PB M 84174 Effect of progesterone on the sex organs of mature nonspayed female rabbits. By Ferdinand Klein. 1940. In German. 2.00

6639-6647 PB M 84174 Ulcerating colitis and its surgical treatment. By Anton Krug aus Kervendonk. 1941. In German. 2.00

6648-6664 PB M 84174 Congenital universal dropsy of the fetus. By Erich Krupp. 1941. In German. 3.00

6665-6686 PB M 84174 Expert judgement of heart injuries as consequences of accidents. By Josef Kurth. 1940. In German. 4.00

6689-6711 PB M 84174 Paroxysmal paralysis with special consideration of inheritance. By Johannes Lanzenrath. 1941. In German. 4.00

6712-6731 PB M 84174 Appearance of a drop of filtered gastric juice on drying. By Josef Laux. 1941. In German. 3.00

6732-6746 PB M 84174 The etiology of the postoperative paralytic ileus. By Anton Liell. 1940. In German. 3.00

6747-6770 PB M 84174 Commotio cordis. By Wolfgang Lübbers. 1939. In German. 4.00

6771-6790 PB M 84174 Action of pancreatic melline in healthy and diabetic persons. By Herbert Luxem. 1941. In German. 3.00

6791-6802 PB M 84174 Investigations on differences in the enamel deposition of the of front teeth and its importance in dentistry. By Ernst Eberhard. 1940. In German. 3.00

6803-6820 PB M 84174 Leucocythemias at the Bonn university olinics, during the last 5 years, as compared to the statistical statements of literature and of the "Reichsstatistik." By Elsa Maurer. 1941. In German. 3.00

6821-6832 PB M 84174 Extension of the fluorescence method for the detection of adrenaline. By Hans Ferdinand Michaelis. 1941. In German. 3.00

6833-6842 PB M 84174 Enlargement of the spleen in diphteria. By Wilhelm Miessen. 1941. In German. 2.00

6843-6857 PB M 84174 Investigation on the virulence-increasing power of mucin. By Altfried Mollitor. 1941. In German. 3.00

6858-6877 PB M 84174 Can the radical measure of extraction be regarded a satisfying solution for prophylaxis and therapy of caries in the practice of social welfare? By Karl H. Moser. 1941. In German. 3.00

6878-6891 PB M 84174 The possibility to use short-wave therapy in cases of deforming arthropathia of the maxillary joint. By Max Müller. 1941. In German. 3.00

6892-6912 PB M 84174 Sectarianism and psychosis. By By Heinz Nachtigaeller. 1940. In German. 4.00

6913-6927 PB M 84174 Contribution to the pharmacology of several derivatives of pyrazolone. By Hans Niehaus. 1940. In German. 3.00

6928-6940 PB M 84174 The influence of progesterone upon the number of thrombocytes. By Wilhelm Obermeyer. 1941. In German. 3.00

6941-6951 PB M 84174 Comparative investigations on the value of various methods of concentration for the detection of mycobacterium tuberculosis. By Heinz Pfeiffer. 1941. In German. 3.00

6952-6979 PB M 84174 Treatment and therapeutic results in cases of saroma of the free extremities at the surgical university olinic, Bonn, from 1900 to 1938. (on 165 cases). By Walther Pochadel. 1940. In German. 4.00

6980-7004 PB M 84174 Determination of the hydrogen-ion concentration within the dentin as related to the pathology of caries. By Gerhard Walter Puke. 1941. In German. 4.00

7005-7021 PB M 84174 The possibility to use diabetics in the labor force. By Paul Resh. 1940. In German. 3.00

METALS AND METAL PRODUCTS

*PB L 87909. FISHER, L. and OPHER, T. W. Investigation at Stahlwerke Kabel C. Pouplier, Jr., at Hagen-Kabelre. Manufacture of hardened, tempered, formed, polished and blued, and cut to lengths, steel strip. (BIOS Final Rept 1590, Item 21). Oct 1946. 10 p. Price: Microfilm-$1.00-Photostat-$1.00
A faultless product is claimed to be turned out by the methods outlined for the subject materials. Drawings are attached.

*PB L 87920. HOLDEN, P. E. and MUMBY, H. H. German shipbreaking methods. (BIOS Final Rept 1621, Item 31). Sep 1946. 47 p. Price: Microfilm-$2.00 - Photostat-$5.00

Twenty-five large firms were visited in various parts together with various small firms on the banks of the River Rhine. The German procedure is compared to the British. Separate reports are given for each port visited. Photographs are included.

PB L 82164. KAISER WILHELM INSTITUT FÜR METALLFORSCHUNG, STUTTGART, GERMANY. Research reports. (PIAT Microfilm Reel A 64, Frames 1-460) 1941-1945. 460 f. Price: Microfilm-$7.00 - Enlargement print-$47.00

This PIAT microfilm reel contains 32 reports in the field of metallurgy, originating at the Kaiser-Wilhelm-Institute for Metallurgy and the Institute of Technology in Stuttgart. Most of these reports were unpublished, but some are reprints or proofs from "Zeitschrift für Metallkunde." Individual items, listed below, will be available as enlargement prints. Please include PB and frame numbers when ordering an individual report. In German.

Frames	Title	Price
1-3 PB L 82164	Index. In German.	$2.00
4-11 PB L 82164	The reactivity of steam and hydrogen peroxide with light metals at elevated temperatures. By Kubaschewski and Ebert. n. d. In German.	2.00
12-18 PB L 82164	Creation of protective layers on a zinc-aluminum-copper alloy by anodic oxidation. By Kubaschewski and others. n. d. In German.	2.00
19-36 PB L 82164	Scale resistance and melting equilibria in the system chromium-tantalum-nickel. By Kubaschewski and Speidel. 1942. In German.	3.00
37-53 PB L 82164	Scale experiments with alloys having high melting points. By Kubaschewski and others. 1941. In German.	3.00
54-59 PB L 82164	Velocity of the oxidation of nickel. By Kubaschewski and von Goldbeck. 1944. In German.	2.00
60-71 PB L 82164	Solidification diagram, heat of mixture, and density of mixture of water and hydrogen peroxide. By Kubaschewski and Weber. 1945. In German.	3.00
72-86 PB L 82164	Uranium carbide, UC_2. By Esch and Schneider. 1945. In German.	3.00
87-91 PB L 82164	Information on the system magnesium and manganese. By Schneider and Stobbe. 1944. In German.	2.00
92-96 PB L 82164	Change of the hardness of gold-nickel, gold-copper, and gold-platinum alloys, by additions of metals. By Speidel and Kubaschewski. 1943. In German.	2.00
97-101 PB L 82164	Anhydrous manganous chloride from ferromanganese. By Schneider and Esch. 1943. In German.	2.00
102-107 PB L 82164	A laboratory arc furnace. By Hutt and Schneider. n. d. In German.	2.00
108-188 PB L 82164	Thermal reduction of magnesium oxide. By Schneider and Hutt. 1944. In German.	10.00
189-197 PB L 82164	Thermal reduction of magnesium and aluminum chlorides with hydrogen. By Kubaschewski. 1942. In German.	2.00
198-206 PB L 82164	Thermal reduction of alumina. By Grube and others. 1944. In German.	2.00
207-215 PB L 82164	The reduction equilibrium of niobium pentoxide and niobium dioxide. By Grube and Fiad. 1945. In German. This item is not very legible.	2.00
216-217 PB L 82164	The fusion heat of magnesium. By Kubaschewski and Reinarts. 1945. In German.	2.00
218-244 PB L 82164	The heat of fusion of metals. By Kubaschewski and Buchler. 1944. In German.	4.00
245-275 PB L 82164	The reactions of aluminum and sodium with melts of the systems $NaF-AlF_3$ and $NaF-AlF_3-Al_2O_3$. By Grube and Hantelmann. 1945. In German.	5.00
276-299 PB L 82164	Diffusion of gases in and through metals. By Kubaschewski. 1942. In German.	4.00
300-305 PB L 82164	Diffusion of metals in solid salts. By Kubaschewski. n. d. In German.	2.00
306-308 PB L 82164	Electrolytic transformation of aluminum to "β-Cu-Al." By Kubaschewski and Villa. 1943. In German.	2.00
309-319 PB L 82164	Creepage of materials in lifting contacts. By Schrag and Oeser. 1945. In German.	3.00
320-324 PB L 82164	Devices for measuring the concentration of electrolytes which contain zinc chloride. By Ebert and Kubaschewski. 1945. In German.	2.00
325-336 PB L 82164	The effect of acids on the zinc alloy "Zn-Al32-Cu" very high in aluminum. By Gebhardt. 1944. In German.	3.00
337-390 PB L 82164	Corrosion behavior of zinc-aluminum-copper alloys in the steam bath. By Pelzel and Gebhardt. 1944. In German.	5.00
391-420 PB L 82164	These frames are duplicates of Frames 337-366 of the preceding item.	
421-427 PB L 82164	The system nickel-manganese. By Köster and Rauscher. 1944. In German. In: Zeitschrift für Metallkunde, vol. 36.	3.00
428-430 PB L 82164	The system aluminum-magnesium-zinc. By Köster. 1944. In German.	2.00
431-439 PB L 82164	Theory of impact stress. By Kochendörfer. n. d. In German.	2.00
440-449 PB L 82164	Relations between the elasticity modulus of two-substance alloys and their constitution. By Köster and Rauscher. 1944. In German. Apparently pageproof from "Zeitschrift für Metallkunde."	2.00
450-460 PB L 82164	The influence of temperature on the elasticity modulus of pure metals. By Köster. 1943. In German. Apparently from the above-named periodical.	3.00

*PB L 87902. LIGHTFOOT, E. and others. German perforated metals industry. (BIOS Final Rept 990, Item 21). Apr-May 1946. 54 p. Price: Microfilm-$2.25 - Photostat-$6.00

Report of a visit of technicians representing the metal perforating industry of Great Britain on the examination of the works of eleven German firms and their plant and tools for the purpose of comparing German and British methods of manufacture and noting any improvements in plant, tools, or methods of working.

*PB L 87912. RANDALL, W. F. and RIBER, W. W. Production of resistance alloys at Isabellen-Hutte-Heusler A. G., Dillenberg, Germany. (BIOS Final Rept 1468, Item 21). May 1947. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

The information on copper manganese master alloys, isabellin, manganin and resistin was obtained from interviews with the three members of the family who own and operate the concern.

PB L 86422. SMITH, ROY HARMON and NEWPHER, CHARLES F. The German "fasteners" industry: Bolts, screws, nuts and rivets. Jul 1945. 30 p. Price: Microfilm-$1.50 - Photostat-$3.00

The fastener industry is one of great importance in peace as well as war. By "fasteners" the complete line of bolts, screws, nuts, rivets, and kindred articles is meant. The German fastener industry was investigated in 1945. Twenty-one factories were visited, the raw materials observed, the chemical contents found, operations determined, and methods learned, together with the number of employees and tons of product produced per month or per year in all cases. This booklet is a reprint of the original report, containing individual reports on each target visited. The German war standard steel for the bolt industry is presented in tabulated form.

ORDNANCE AND ACCESSORIES

PB L 88159. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. Interrogation of Dr. H. Stadler: Rimfire small arms ammunition. (Interrogation Rept 619). Sep 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

This report is concerned mainly with caps and explosive compositions. However there is a very short discussion on rimfire ammunition.

*PB L 87382. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. Metallurgical examination of German centrifugally cast gun barrels ex Bochumer Verein plant. (BIOS Final Rept 1461, Item 2). n. d. 37 p. Price: Microfilm-$1.75 - Photostat-$4.00

In this report is given the complete metallurgical examination of four German gun barrels manufactured by centrifugal casting. All were metallurgically sound, free from unsoundness (porosity etc.) or any other internal defects. Tables, drawings and photographs are included. The method of manufacture is detailed in publications (a) "Centrifugal casting of metal in Germany" FIAT Final Report No. 81 (PB 1249; v. 1, p. 90, this Bibliography) and (b) "Special alloy steel manufacture and centrifugal casting of alloy tubes and gun barrels" CIOS Report File No. XXXI-46, Item 21 (PB 4334; v. 1, p. 491).

PB L 88160. DOYLE, R. J. and others. Interrogation of Dr. H. Stadler: Rimfire small arms ammunition. (BIOS Interrogation Rept 618). Sep 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

The information sought on this subject is supplementary to that already obtained and recorded in BIOS Final Rept. No. 1074 (PB 75879, v. 5, p. 968, this Bibliography).

PB L 81710. DRYDEN, HUGH L. Status of development of special missiles in Germany as of Feb. 6, 1945. (AAF Tech Intelligence Rept N-25). May 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

This report is based on a very brief examination of certain documents in the files of Prof. Osenberg, chief of the planning office of the Reich Research Council concerning "Long-range weapons" and "Breaking the enemy air terror."

PB L 86365. EDDY, G. G. and others. First report in connection with test of grease seal for carriage, gun, 4.5-inch M1, and carriage, howitzer, 155 M/M, M1. (Aberdeen Proving Ground Ordnance Program 5500 Rept 10). Nov 1942. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

Report on tests to determine if the grease seal submitted would be satisfactory for sealing the traversing surfaces between the top and bottom carriage from water and dirt. All identifying references deleted. Photographs attached.

PB L 86871. FREEMAN, R. W. Hydraulic fatigue test of cylinder from German 75-mm. KwK-42 Panther tank gun. Final report on Job 1141. (Watertown Arsenal Lab Memo Rept 731/161). Jan 1946. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00

The object was to determine the extent of progressive stress-damage by the hydraulic fatigue test in a German 75-mm. Panther tank gun which had been fired. Description of gun, procedure of test and results are given. Photographs are included.

PB L 81529. GLASSMAN, L. H. Airplane fire control system "Oberon." (Naval Tech Mission in Europe. Tech Rept 294-45). Aug 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

A brief discussion of this equipment, based on information furnished by Rheinmetall-Borsig A.G., at Unterluss, Germany. "Oberon" is the cover name for a method of firing rockets from aircraft.

PB L 81528. GLASSMAN, L. H. Electrical detonation of guns. (Naval Tech Mission in Europe. Tech Rept 350-45). Sep 1945. 44 p. Price: Microfilm-$2.00 - Photostat-$5.00

This report, prepared from data furnished by the Automatic Weapons Section of Rheinmetall-Borsig, Unterluss, Germany, contains information on electrical detonating primers and synchronising systems for aircraft guns. Specifications attached.

PB L 81530. GLASSMAN, L. H. German aircraft and anti-aircraft gunnery training targets. (Naval Tech Mission in Europe. Tech Rept 296-45). Aug 1945. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00

The data set forth in this report was obtained from Flugbaumeister Riecker and Flugkapitan Simon, although their knowledge of technical details was not intensive. Stationary, moving, kite, and ballon targets are mentioned as well as tow targets of the star, cylindrical and ring types. Drawings are included.

PB L 81527. GLASSMAN, L. H. German aircraft armament-turrets-remote control-mounts. (Naval Tech Mission in Europe. Tech Rept 349-45). Oct 1945. 148 p. Price: Microfilm-$4.50 - Photostat-$15.00

This report contains an overall review of German aircraft gun mounts and turrets as well as an outline of armament planned

for new German aircraft. The material on which this report is based was obtained from the Rheinmetall-Borsig plant at Unterluss, Germany. Photographs and drawings attached.

PB L 86285. GREAT BRITAIN, ROYAL AIR FORCES. ARMAMENT DESIGN DEPARTMENT. Interrogation of Dipl. Ing. E. A. Marquard. (BIOS Rept 29). Jun 1946. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
Herr Marquard was the Chief of the Technische Luft Rustung, Dept. E7. He transmitted Staff requirements to firms and received the firms' design drawings. His department dealt with bombs, mines, and torpedoes. This interrogation concerned fabrication of A. P. Bombs, base bungs, nose-hardening, general bomb development, handling of clusters, development of S.D. 2, S.H.L. 4,000 and 6,000, and water roll-bombs.

PB L 81904. GRONDAHL, L. O. High angle bombs. May-Jun 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00
The report deals with the correction of errors in high-angle bombing, the development of the aerodynamics of the bomb bodies, and the assembly of the essential apparatus for the three types of control systems, namely television, target-seeking, and direct-sight. From Army ordnance, May-June 1947.

PB L 85427. HUGH-JONES, P. Some physiological aspects of tank driving controls. May 1944. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00
This report deals with the maximum push exertable on a foot pedal and how this varies with the position of the pedal relative to the seat. Appendix A gives the results obtained with the hydraulic brake-pedal pressometer; Appendix B deals with the thigh and leg angles of the Cromwell, Churchill and Sherman driver. A diagram, tables and graphs are included.

PB L 86366. JOHNSON, WILLIAM B. and others. First report on test of the D. EX-1124-7 air cleaner for use with the R-975 series engine. (Aberdeen Proving Ground Ordnance Program 5313 Rept 42). May 1943. 46 p. Price: Microfilm-$2.00 - Photostat-$5.00
Laboratory test results are satisfactory and are tabulated. Appendix contains photographs, photostats, log sheets, curves, and correspondence. Certain references are deleted.

PB L 85681. KUNERT. Intermediate report concerning the testing of torpedos with battery 17 T. (Accurate Translation Service Rept 40). Aug 1944. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
The report contains: (1) statement of problem, (2) ballast-loading, (3) running characteristics (a) velocity (b) maximum running distance (c) ballistic behavior of torpedo on straight-course (d) turning-circle shot, (4) air reserves of the torpedo, (5) ready-for-action changes, (6) handling of the ready-for-firing torpedo, and (7) changes in construction. Four diagrams are attached. Translated from the German.

PB L 81553. LEWIS, S. T. and others. Interrogation of Dr. Graff, May 2, 1947. (BIOS Interrogation Rept 541). Jul 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
The present interrogation dealt with certain details of protective treatments, paints, lacquers, etc., and covered in some detail the methods employed in Germany for the lubrication of S.A.A. rounds by means of friction reducing media of lacquer and wax type.

PB L 85386. MCCLURE, F. T. and others. Thermodynamic properties of British flashless and cordite MD powders. Progress report. (OSRD Rept 817; NDRC Rept A 82). Aug 1942. 32 p. Price: Microfilm-$1.75 - Photostat-$4.00
In this report we derive the thermodynamic properties of two British flashless powders, CN(1) and CN(2), and a cordite MD. The following data are considered: composition of the powder gas, pressure, energy released and adiabatic flame temperature, enthalpy, entropy. A series of charts, Figs. 1-9, is attached.

PB L 86502. SCHULMAN, J. H. and others. German research into increasing range and performance of flame throwers. (BIOS Final Rept 250, Item 17). Mar 1946. 20 p. Price: Microfilm-$1.25 - Photostat-$2.00
This interrogation and search for weapons was guided principally by the endeavor to find out what the Germans were about to develop and what theoretical ideas they had on the projection of fluids, and not so much on existing battle weapons. Six interviews were held. Drawings are attached.

PB L 85424. U. S. NAVAL TORPEDO STATION, NEWPORT, R.I. The Japanese 45 cm submarine torpedo. (Torpedoes nos. 27, 34, 55 and 58). Aug 1943. 176 p. Price: Microfilm-$5.25 - Photostat-$18.00
A description is given of the construction and operation of the above torpedo. Numerous photographs and diagrams illustrate the text.

Rept P #44

PB L 81884. U. S. STRATEGIC BOMBING SURVEY. (PACIFIC). MILITARY SUPPLIES DIVISION. Japanese naval ordnance. Aug 1946. 30 p. Price: Microfilm-$1.50 - Photostat-$3.00
This report examines the growth and decline in Japanese naval ordnance output from 1931 to the end of the war, analyzes major limitations to growth and basic causes for decline. Emphasis has been placed upon production rather than logistics. Attention has been given to the relative importance of deficiencies in output of the various naval ordnance items. Naval ordnance is herein defined to include all weapons produced by naval arsenals and civilian plants for use by naval aircraft, ships, bases, and merchant vessels. These weapons include guns, ammunition, bombs, mines, torpedoes, radio, and electrical equipment, optical and navigational equipment. All basic data were obtained from interrogations, from reports prepared by officials of the Japanese navy ministry and from investigations of naval arsenals. Production indices were developed from physical production series weighted by value of the 1945 output of the various items. The Japanese fiscal year, 1 April to 31 March, is used throughout the report.

PB L 86962. U. S. TECHNICAL INDUSTRIAL INTELLIGENCE COMMITTEE. CHEMICALS SUBCOMMITTEE. Ignition of chloranil-alkali-hydroxide mixtures by water. Translation report. (Chemicals Rept 13). Oct 1945. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00
A report on a series of investigations concerning the chemistry of the ignition to clarify the reaction mechanism. Chloranil is an important product for Helindone and Sirius dyes. The raw material for it is phenol or waste chlorphenol.

PB L 86624. U. S. WAR DEPARTMENT. Carriage, motor, 75-cm Howitzer, M8; tank, light, M5 and M5A1; tractor high-speed, 13-ton M5; Steering brake, link pin. (Tech Bulletin Ord 179). Sep 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

Ordnance and Accessories (contd)

PB L 86632. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Cadillac V8 tank engine. (Tech Bulletin Ord 257). Feb 1945. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86017. U. S. WAR DEPARTMENT. Flame thrower mechanized, M3-4-3, installed in medium tanks M4A1 and M4A3. (Tech Manual 3-362). Jun 1945. 163 p. Price: Microfilm-$5.00 - Photostat-$17.00

PB L 86585. U. S. WAR DEPARTMENT. Heavy tank M26: extension of gun traveling lock lever. (Tech Bulletin 9-735 FE1). Jul 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 85696. U. S. WAR DEPARTMENT. Heavy tank T26E3. (Tech Manual 9-735). Jan 1945. 490 p. Price: Microfilm-$7.00 - Photostat-$49.00

PB L 86586. U. S. WAR DEPARTMENT. Light tank M24: Installation of a remote control handle for master battery switch. (Tech Bulletin 9-729-FE7). Jul 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86587. U. S. WAR DEPARTMENT. Light tank M24: Installation of radio suppression equipment on ignition system. (Tech Bulletin 9-729 FE6). Jun 1945. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 85694. U. S. WAR DEPARTMENT. Light tanks M5 and M5A1. (Tech Manual 9-732). Nov 1943. 358 p. Price: Microfilm-$7.00 - Photostat-$36.00

PB L 62818-S. U. S. WAR DEPARTMENT. List of all service parts for carriage, motor, 155-mm Howitzer, M1, (T6E1) (SNL G-236); carriage, motor, 105mm Howitzer, M 37 (T76) (SNL G-238). (Supplement to PB 62818). Sep 1947. 494 p. Price: Microfilm-$10.00 - Photostat-$33.00

PB L 86568. U. S. WAR DEPARTMENT. Ordnance engine, model R975-C4: Correct magneto timing. (Tech Bulletin 9-1725-22). Apr 1944. 1 p. Price: Microfilm-$1.00- Photostat-$1.00

PB L 86613. U. S. WAR DEPARTMENT. Ordnance supply catalog: Alphabetical index to stock list of all items. (Ordnance Rept 5-2). Jul 1946. 65 p. Price: Microfilm-$2.50 - Photostat-$7.00

PB L 85515. U. S. WAR DEPARTMENT. 75-mm gun M6 and combination gun mount M64. (Tech Manual 9-313). Sep 1944. 100 p. Price: Microfilm-$3.25 - Photostat-$10.00

PB L 85514. U. S. WAR DEPARTMENT. 75-mm rifle T21. (Tech Manual 9-314). Jan 1945. 55 p. Price: Microfilm-$2.25 - Photostat-$6.00

PB L 86655. U. S. WAR DEPARTMENT. Tank, light, M3A3; vehicle, landing, tracked, LVT (A) (1), LVT (2), LVT (A) (2), LVT (4) and LVT (A) (4): Engine governor setting. (Tech Bulletin Ord 296). May 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86563. U. S. WAR DEPARTMENT. Tank, light, M5, M5A1; carriage, motor, 75-mm Howitzer, M8: differential ring gear and pinion backlash. (Tech Bulletin 9-1727B-1). Jan 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86620. U. S. WAR DEPARTMENT. Tank, light, M5 and M5A1, carriage, motor, 75-mm Howitzer, M8: Engine water temperature gage units and instrument panel gages, simplified linkage adjustment procedure. (Tech Bulletin Ord 68). Mar 1944. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86625. U. S. WAR DEPARTMENT. Tank, M5, M5A1, and M24; carriage, motor, 75-mm Howitzer, M8; half-track vehicles (Autocar, Diamond T and White): Servicing hydraulic valve lifters. (Tech Bulletin Ord 191). Sep 1944. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86631. U. S. WAR DEPARTMENT. Tank, light, M5 and M5A1, carriage, motor, 75-mm Howitzer, M8: Installation of late type distributor. (Tech Bulletin Ord 252). Feb 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86651. U. S. WAR DEPARTMENT. Tank, light, M5, M5A1; carriage, motor, 75-mm Howitzer, M8: Matched flywheel housings. (Tech Bulletin Ord 24). Jan 1944. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86564. U. S. WAR DEPARTMENT. Tanks, light, M5, M5A1: Carriage, motor, 75-mm Howitzer, M8: Removing transfer unit bands - unit in vehicle. (Tech Bulletin 9-1727D-5). Jul 1943. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86566. U. S. WAR DEPARTMENT. Tank, light, M5 and M5A1; carriage, motor, 75-mm Howitzer, M8: Setting of starter solenoid relay points. (Tech Bulletin 9-1727B-1). May 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86650. U. S. WAR DEPARTMENT. Tank, light, M24: Change in engine ignition timing procedure. (Tech Bulletin 9-729-1). Sep 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86647. U. S. WAR DEPARTMENT. Tank, light, M24: Correct adjustment of transmission manual control linkage. (Tech Bulletin 9-729-5). Apr 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86649. U. S. WAR DEPARTMENT. Tank, light, M24: Hydrostatic lock. (Tech Bulletin 9-729-2). Nov 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86589. U. S. WAR DEPARTMENT. Tank, light, M24: Installation of auxiliary carburetor fuel filter. (Tech Bulletin 9-729-FE4). May 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86588. U. S. WAR DEPARTMENT. Tank, light, M24: Installation of gunner's foot rest. (Tech Bulletin 9-729-FE5). Jun 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86643. U. S. WAR DEPARTMENT. Tank, light, M24: Installation of driver's and assistant driver's door lift handles. (Tech Bulletin 9-729-FE2). Mar 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86648. U. S. WAR DEPARTMENT. Tank, light, M24: New type engine carburetor air cleaner. (Tech Bulletin 9-729-4). Feb 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86644. U. S. WAR DEPARTMENT. Tank, light, M24: Reinforcement of front torsion bar cushion stop brackets. (Tech Bulletin 9-729-FE1). Oct 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86642. U. S. WAR DEPARTMENT. Tank, light, M24: Sealing hull to prevent water from entering the crew and engine compartments. (Tech Bulletin 9-729-FE3). May 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86645. U. S. WAR DEPARTMENT. Tank, light, M24: Simplified procedure for replacing transmission valve body. (Tech Bulletin 9-729-6). Jun 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86618. U. S. WAR DEPARTMENT. Tank, medium, M4 and M4A1: Carriage, motor, 105-mm Howitzer, M7; carriage motor, 155-mm gun, M12 and carrier, cargo, T14; carriage, motor, 76-mm gun, T70: Lubrication of carburetor pump stem and lever. (Tech Bulletin Ord 29). Mar 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86629. U. S. WAR DEPARTMENT. Tank, medium, M4 and M4A1: Carriage, motor, 105-mm Howitzer, M7; carriage, motor, 155-mm gun, M12; carrier, cargo, M30 (T14); vehicle, tank recovery, M31, M32 and M32B1: Tightening of exhaust collector ring clamps on Continental R975 series engines. (Tech Bulletin Ord 222). Nov 1944. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86623. U. S. WAR DEPARTMENT. Tank, medium, M4 and M4A1; carriage, motor, 105-mm Howitzer, M47; carriage, motor, 155-mm gun, M12; carriage, motor, 76-mm gun, M18 (T70); carrier, cargo, M30 (T14); piston ring identification and installation (Continental R975 series engines). (Tech Bulletin Ord 115). Jun 1944. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86622. U. S. WAR DEPARTMENT. Tank, medium M4 and M4A1; carriage, motor, 105-mm Howitzer, M7: Replacing Homec fuel pump equipped engines with AC fuel pump equipped engines. (Tech Bulletin Ord 108). Jun 1944. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86621. U. S. WAR DEPARTMENT. Tank, medium, M4A3; M4A3W/75-mm gun; W/76-mm gun; W/105-mm Howitzer; M4A3E2; T23; T25E1; T26E1; carriage, motor, 90-mm gun, T71; carriage, motor, 105-mm Howitzer, M7B1; 3-inch gun, M10A1: Spark plug inserts. (Tech Bulletin Ord 95). May 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86581. U. S. WAR DEPARTMENT. Tank, medium, M4A3 (75 mm gun, wet): Improving accessibility of lubrication fitting on clutch housing. (Tech Bulletin 9-759-FE1). Sep 1944. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86637. U. S. WAR DEPARTMENT. Tanks, carriages, and vehicles with Ford GAA, GAF, or GAN tank engine: servicing spark plugs. (Tech Bulletin Ord 288). Apr 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86565. U. S. WAR DEPARTMENT. Tanks, light, M5, M5A1; carriage motor, 75-mm. Howitzer, M6; Transmission manual control shaft gasket. (Tech Bulletin 9-1727C-4). May 1943. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86561. U. S. WAR DEPARTMENT. Tanks, medium M3A3, M3A5, M4A2: Carriage, motor, 3-in. gun, M10 vehicle, tank recovery, T2 (Diesel): Proper backlash between oil pump driven gear and idler gear, GM model 6046, twin Diesel engines. (Tech Bulletin 9-1750C-5). Sep 1943. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86560. U. S. WAR DEPARTMENT. Tanks, medium, M3A3, M3A5, M4A2; carriage, motor, 3-inch gun, M10; vehicle, tank recovery, T2 (M31): Types of injectors used in model 6046 twin 6-cylinder, G.M. Diesel engines. (Tech Bulletin 9-1750C-6). Sep 1944. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

*PB L 86714. WESTON, B. A. Factory filling and assembling shell for Luftwaffe. (BIOS Evaluation Rept 428). Mar 1946. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
Physical report on the Lufthauptmunitions Anstalt, Nienburg, Germany.

*PB L 86715. WESTON, B. A. Fuzes. (BIOS Evaluation Rept 427). Mar 1946. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report deals almost exclusively with the 7.92 mm SAA section of the factory (Westfalische Metallindustrie, Lippstadt) but the fuse section is mentioned.

TEXTILES AND TEXTILE PRODUCTS

*PB L 87936. ALEXANDER, P. and WHEWELL, C. S. Some aspects of textile research in Germany. (BIOS Final Rept 1472, Item 22). Aug-Sep 1946. 137 p. Price: Microfilm-$4.25 - Photostat-$14.00
The report is divided into four parts as follows: Part I - polyamides and related fibres. No attempt has been made to describe in any detail actual large scale processes and the emphasis is entirely on research, irrespective of whether the results have been extended into practice; Part II - wool. The account of progress in the chemistry and technology of wool and related fibres is based upon information obtained by discussion with scientists and technicians of I. G. Farben A.G.; Part III - cellulosic fibres. Most of the information recorded in this part is of a technical nature and was obtained during interviews of the various scientists and technicians whose names appear at the beginning of the section; and Part IV - miscellaneous items. (1) Animalization of acetate rayon, (2) hardening of casein fibres, and (3) testing methods. Information for the appendix, isocyanate chemistry, was obtained from Drs. Petersen and Rinke (I. G. Leverkusen) and to some extent from documents "Polyamide Besprechungen."

*PB L 87883. BARRATT, H. and others. Viscose rayon tyre cord production. (BIOS Final Rept 1450, Item 22). Feb-Mar 1947. 74 p. Price: Microfilm-$2.75 - Photostat-$8.00
In each of the four factories visited other types of viscose rayon were in production side by side with tire cord, perhaps having a common viscose making plant. In such cases it was difficult to separate the tire cord process entirely from the rest, therefore much of the data given in this report covers normal rayon yarn manufacture as well. Sketches, diagrams and photographs are included.

*PB L 88098. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. Rayon production. Interrogation of Dr. A. Riedemann. (Interrogation Rept 866). Aug 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00
The facts as far as revealed during this interrogation do not prove that he succeeded in solving or even in approaching in a promising way the problem of manufacturing from viscose a yarn with distinctly improved swelling properties, neither could he reveal anything which proved he has solved or even approached the problem of thermal decomposition of sodium sulfate with the aim of effectively recovering sulfuric acid and caustic.

PB L 88099. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. Rayon production. Interrogation of Dr. Reidermann. (Interrogation Rept 865). Aug 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
Nine questions were submitted which he answered. Very little new information was obtained and it was concluded that this would be the case with any further questions.

*PB L 87900. CURTIS, R. G. Wool grease extraction and refining. Process of Wollwascherei und Kammerei of Döhren. (BIOS Final Rept 1581, Item 22). Jun 1947. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report gives supplementary details to BIOS Final Rept 474 (PB L 34745, v. 2, p. 994, this Bibliography).

*PB L 87875. DIAMOND, C. Glass jets. Interrogation of Bernhard Wempe at Coventry. (BIOS Final Rept 1451, Item 22; Interrogation Rept 519). Nov 1946. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00
The manufacture of glass jets for rayon products was performed in Germany by Paul Aschenbrenner, Potsdam, in association with Wempe. Manufacturing methods, materials and production costs are discussed.

*PB L 87878. DRACUP, C. T. and others. Manufacture and use of Jacquards and Jacquard card punching machinery in Germany. (BIOS Final Rept 1390, Item 31). Feb-Mar 1947. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00
The German figured weaving industry used endless paper Jacquard machines to a much greater extent than its British counterpart. In ordinary weaving, as distinct from plush or moquette, the center shed machine is practically universal. In the main the designs seen were not first class. While all original packs of cards are cut on piano machines, the use of the condensed system of designing and cutting was not in operation at any firm in the British Zone.

PB L 86249. KENNEDY, S. J. and others. Areas of Quartermaster research in textiles. (QM Textile Series Rept 25) n. d. 47 p. Price: Multilith-$2.00
This summary is the most recent statement of the Quartermaster Corps' textile research. Of the thirteen projects outlined in the presentation, the first nine are fundamental studies of fibers, fabrics, and finishes and as such have a direct bearing upon the development of commercial as well as military items. The remaining four are concerned with the improvement of specific articles of clothing or equipage for the armed services. The projects are: Wear resistance of textiles; water resistance of textiles; shrink resistance of textiles; dyeing and finishing of military textiles; mildew resistance of textiles; fire resistant treatment for textiles; chemical and photochemical degradation of cellulose; investigation and classification of textile fiber properties; development and interpretation of textile test methods; tent design and construction; improvement of military webbing; fire, water, weather and mildew resistant treatment for tentage; and fabric for cot covers. Under each of these topics the present status of research, the proposed research program for 1946-1947, and a chart are given.

*PB L 86710. LAROSO, P. and BURTON, A. C. Parachutes. (BIOS Evaluation Rept 477). Mar 1946. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report deals only with the textile aspect of research on parachutes at Forschungsanstalt Graf Zeppelin at Nellingen. The target has little of purely textile interest.

PB L 87472. PARSONS, B. German weaving of cotton and "Zellwolle" (cellulose wool). n. d. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

This is a comparison of the German and American spinning methods and looms wherein the American methods and equipment are far superior.

*PB L 87935. TAYLOR, N. A. and others. Investigation of German hosiery needle industry. (BIOS Final Rept 1506, Item 36). Apr 1947. 39 p. Price: Microfilm-$1.75 - Photostat-$4.00
Two targets were visited; (a) Franz Arndt (in the British Zone) which appears to be in the development stage; and (b) Groz Beckert (in the French Zone) which is by far the more important. Due to the number and ingenuity of the machines in use, the result of three generations of machine designers working on hosiery needles, the report covers a description of the more recent machines. Drawings, photographs and free-hand sketches are attached.

PB L 74235. VEREINIGTE GLANZSTOFF FABRIKEN A. G., OBERBURG, GERMANY. Research reports. (FIAT Microfilm Reel D-300, Frames 9321-9999 and 1-125) 1941-1943. 804 f. Price: Microfilm-$6.00 - Enlargement prints-$80.50.
The 104 individual items of this FIAT microfilm reel are listed below. They will be available as enlargement prints. Please give PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
9321-9324 PB L 74235	Alphabetical list of condensation processes carried out in the Research Institute Seehof. In German.	$1.50
9325-9333 PB L 74235	Summarizing report on the status of the problem of hydrophobing cellulose hydrate material in the spring of 1943, with consideration of the most important procedures. By Profft. 1943. In German.	1.50
9334-9349 PB L 74235	Report on a new process for shrinking cellulose hydrate material with urea-ammonium-chlorida-formaldehyde-formic acid. By Profft. 1943. In German.	2.00
9350-9353 PB L 74235	Influence of shrinking done in the cross section. By Jancke. n.d. In German.	1.50
9354-9356 PB L 74235	Report on testing "R-Zellstoff" of the "Feldmuhle." By Bartunek. 1943. In German.	1.50
9357-9359 PB L 74235	Test of prehydrolyzed beech wood sulfate cellulose of the "Feldmuhle." n.d. In German.	1.50
9360-9362 PB L 74235	Improvement in the cold steep of alkali cellulose after preliminary ripening. By Bartunek. 1943. In German.	1.50
9363-9374 PB L 74235	Addition substances for viscose. n.d. In German.	1.50
9375-9391 PB L 74235	Introduction of acryl resins into cellulose hydrate fibers. By Nowakowski. 1943. In German.	2.00
9393-9400 PB L 74235	Influence of acids, salt solution and heat on the steep of polymerization and swelling of synthetic cellulose fibers. By Richter. n.d. In German.	1.50
9401-9402 PB L 74235	Leeved tree wood sulfate cellulose of Waldhof. By Bartunek. 1943. In German.	1.50
9403-9407 PB L 74235	Suggestion as to the working program of the Research Institute for 1932, particularly in the field of cellulose. n.d. In German.	1.50
9408-9413 PB L 74235	Brief abstract from the lecture "State of research in the field of viscose" held in Oct of 1942. In German.	1.50
9414-9436 PB L 74235	Spinning of cellulose fibers by the "Sedura" process, using "Stiftverstreckung." By Elsener and Schulz. 1943. In German.	2.50
9437-9439 PB L 74235	Curl-fiber produced with the aid of bicarbonate. By Bartunek and Mohrens. 1943. In German.	1.50
9440-9447 PB L 74235	Preparation of extremely strong fibers without adding "Monopolbrillantöl" to the viscose. By Bartunek and Rauchalles. 1942. In German.	1.50
9448-9451 PB L 74235	Solubility of carbon disulfide in water. 1942. In German.	1.50
9452-9454 PB L 74235	Notes on admixtures of keratin to viscose. 1942. In German.	1.50
9455-9462 PB L 74235	On the constitution of the compounds formed during thermic self condensation of primary hydracids and during the treatment of nitriles, imino ether and secondary hydracids with hydrazine hydrate. 1942. In German.	1.50
9463-9468 PB L 74235	The transformation of primary and secondary hydracids of dicarboxylic acids to polydihydrotetrazines or polyaminotriazoles. By Gehlen. 1942. In German.	1.50
9469-9477 PB L 74235	Examination of the permanent bending test of rayon yarns. By Richter and Jancke. 1942. In German.	1.50
9478-9481 PB L 74235	Experiments concerning the use of cellulose wool tissues as dialyzing membrane in a Corini apparatus. By Richter. 1942. In German.	1.50
9482-9484 PB L 74235	Spinning of viscoses with constant alkali content and varied cellulose content, by the Duraflox" process. By Klein. 1942. In German.	1.50
9485-9489 PB L 74235	Difficulties in filtration and spinning, with Kostheim beech wood sulfite cellulose in Kassel. By Bartunek. 1942. In German.	1.50
9490-9493 PB L 74235	Preparation of adipic acid and "Sebacindihydroxansäure." 1942. In German.	1.50
9494-9501 PB L 74235	Studies regarding the problem of a suitable catalyst for the shrinking of hydrate cellulose fibers with formaldehyde. 1942. In German. Parts of this document may reproduce poorly.	1.50
9502-9545 PB L 74235	Continued investigations on the suitability of some substances, especially of aromatic nature, for preparing synthetic fibers of the Nylon type. By Profft. 1942. In German.	4.50

9546-9549 PB L 74235 — Difficulties in spinning during the preparation of Rt. 1942. In German. 1.50

9550-9563 PB L 74235 — Determination of the "Griff" (touch) of rayons. By Jancke. 1942. In German. 1.50

9564-9566 PB L 74235 — Status of the experimental production of synthetic fibers on the basis of the Nylon patents. 1942. In German. 1.50

9567-9574 PB L 74235 — New methods of testing cellulose microscopically. By Bartunek. 1942. In German. 1.50

9575-9578 PB L 74235 — Attempts to spin fully synthetic fibers by new methods. 1942 In German. 1.50

9579-9581 PB L 74235 — Preparation of polycondensation substances from dicarboxylic acids obtained by paraffin oxidation, and from hexamethylene diamine. 1942. In German. 1.50

9582-9590 PB L 74235 — Status of the "Sedura flox" experiments. By Klesner. 1942. In German. 1.50

9591-9600 PB L 74235 — Studies on the problem of catalysts during shrinkage of cellulose fibers with formaldehyde. By Richter. 1942. In German. 1.50

9601-9602 PB L 74235 — Treatment of rayon with urea-formaldehyde resin, under precautions insuring resistance to boiling. By Nowakowski. 1942. In German. 1.50

9603-9607 PB L 74235 — Testing a "Borregaard Cellulose" poor in resin as to its tendency to foaming and suitability for preparation of Rt. By Bartunek. 1942. In German. 1.50

9608-9614 PB L 74235 — Addition products for viscose. By Henrich. 1942. In German. 1.50

9615-9629 PB L 74235 — Treatment of spinning cake with "Caseinschlichte" (sizing agent consisting of casein). By Schulz. 1942. In German. 1.50

9630-9631 PB L 74235 — Reports on the effect of hydrogen fluoride on acetylene. 1942. In German. 1.50

9632-9635 PB L 74235 — Addition products for viscose and the bending value of rayon. By Bartunek. 1942. In German. 1.50

9636-9638 PB L 74235 — Capability of viscose to dissolve alkali cellulose. By Bartunek. 1942. In German. 1.50

9639-9645 PB L 74235 — "Tatonisieren" of Lilienfeld rayon. 1942. In German. 1.50

9646-9649 PB L 74235 — Determination of the fulness of rayons. 1941. In German. 1.50
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9650-9656 PB L 74235 — Intrinsic viscosity of xanthate. By Bartunek. 1942. In German. 1.50

9657-9660 PB L 74235 — Comparison of the various starting products of the "Konzern" regarding resistance to bending and friction. By Richter. 1942. In German. 1.50

9661-9664 PB L 74235 — Spinning of "Kohlzellwolle" in "Oberbruch." By Klesner. 1942. In German. 1.50

9665-9673 PB L 74235 — These frames numbers are illegible.

9674-9677 PB L 74235 — Determination of the mol proportions in viscose. By Feit and Pets. 1942. In German. 1.50

9678-9687 PB L 74235 — Determination of the fulness of rayons. By Jancke. 1942. In German. 1.50

9688-9690 PB L 74235 — Spinning in alcoholic baths. By Petsch. 1942. In German. 1.50

9691-9693 PB L 74235 — Fine-filtration of viscose by means of a layer of long-fiber asbestos. By Bartunek. 1942. In German. 1.50

9694-9699 PB L 74235 — The difficulties due to foaming and the decrease in strength and quality during production of Rt in Oberburg, when using 100% Borregaard cellulose. By Bartunek. 1942. In German. 1.50

9700-9702 PB L 74235 — Internal discussion regarding production of raw materials for synthetic fibers. 1942. In German. 1.50

9703-9705 PB L 74235 — Behavior of cellulose wool and rayon at high temperatures. By Petsch. 1942. In German. 1.50

9706-9710 PB L 74235 — Intensive preliminary ripening of straw cellulose. n.d. In German. 1.50

9711-9712 PB L 74235 — Re-esterification for hydrophobing and shrinking of hydrate cellulose. By Richter. 1941. In German. 1.50

9713-9717 PB L 74235 — Studies on the treatment of synthetic cellulose fibers with formaldehyde. By Richter. 1941. In German. 1.50
May reproduce poorly.

9718-9735 PB L 74235 — These frames are illegible.

9736-9738 PB L 74235 — Polarographic measurements. 1941. In German. 1.50
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9739-9749 PB L 74235 — These frames numbers illegible.

9750-9754 PB L 74235 — Spinning with addition of lauryl pyridinium salt in coagulation baths. n.d. In German. 1.50
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9755-9759 PB L 74235 — Technical investigations of "Walzen-Rt-Seide." By Jancke. 1941. In German. 1.50

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312-324 PB L 82155 — Intermediate report on the progress made between Feb 1 and Aug 1, 1944, by the Biosyn G.m.b.H. By Diemair. In German. 3.00

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535-539 PB L 82155 — Index and foreword. By E. Franz. In German. 2.00

540-549 PB L 82155 — Purification by adsorption of liquors containing hemicellulose. By W. Winkler and Lambiotte. In German. 2.00

550-554 PB L 82155 — Xanthogenation of cellulose. By W. Winkler. In German. 2.00

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567-570 PB L 82155 — Opinions on the above report of A. Marschall (frames 555-566). By H. Böhringer. In German. 2.00

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AERONAUTICS

PB L 86226. SMITH, C. R. Air transportation and national defense. Jan 1946. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00
This address, sponsored jointly by the Library of Congress and the Air Power League, was given in the Library's auditorium January 21, 1946. A selected bibliography is appended.

PB L 81293. U. S. AERONAUTICAL BOARD. Adapter-parachute harness quick fit. (Army-Navy Aeronautical Standard Drawing AN6517). Jun 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00.

PB L 26543-R3. U.S. AERONAUTICAL BOARD. Amplifier - air position indicator. (Partial revision to PB 26543). (Army-Navy Aeronautical Standard Drawing AN 5844). Dec 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00.

PB L 21204-A. U. S. AERONAUTICAL BOARD. Aluminum alloy 5.5Zn - 2.5Mg - 1.5Cu (75) clad plate and sheet. (Army-Navy Aeronautical Specification AN-A-10b, Amendment 1). Oct 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21188-R. U. S. AERONAUTICAL BOARD. Aluminum alloy 5.6Zn-2.5Mg-1.6Cu (75); Bars, rods, shapes, and wire. (Army-Navy Aeronautical Specification AN-A-11b). Oct 1947. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26143-R. U. S. AERONAUTICAL BOARD. Base plate assembly - runway marker lamp (for snow areas). (Revision of PB 26143). (Army-Navy Standard Aeronautical Drawing AN 2532). May 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21222-R. U. S. AERONAUTICAL BOARD. Bearing, copper-tin sintered (oil impregnated). (Supersedes specification AN-B-7, Aug 1942). (Army-Navy Aeronautical Specification AN-B-7a). Apr 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 23836-A. U. S. AERONAUTICAL BOARD. Catalogs, engine parts. (Amendment 1 to PB 23836). (Army-Navy Aeronautical Specification AN-C-110, Amendment 1). Apr 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87394. U. S. AERONAUTICAL BOARD. Cable, electric, low-tension, aircraft. (Specification AN-J-C-48). (ANA Bulletin 1122g). Dec 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87397. U. S. AERONAUTICAL BOARD. Certified X-ray laboratories. (Specification AN-X-2). (ANA Bulletin 2157) Dec 1947. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21275-A3. U. S. AERONAUTICAL BOARD. Compass liquid, aircraft. (Supersedes all previous amendments). (Army-Navy Aeronautical Specification AN-C-116, Amendment 3). Apr 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80773-A. U. S. AERONAUTICAL BOARD. Copper, beryllium, bar, rod and wire. (Amendment 1 to PB 80773). (Army-Navy Aeronautical Specification AN-C-166-A). Nov 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26336-R. U. S. AERONAUTICAL BOARD. Coupling - couduit Y. (Revision of PB 26336). (Army-Navy Aeronautical Standard Drawing AN 3250). Apr 1947. 1 p. Price: Micrpfilm-$1.00 - Photostat-$1.00

PB L 80787. U. S. AERONAUTICAL BOARD. Data, engineering and technical (reproduction thereof). (Supersedes specification AN-D-11, Jan 1944). (Army-Navy Aeronautical Specification AN-D-11a). May 1947. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26805-R. U. S. AERONAUTICAL BOARD. Drive - square tang and socket. (Revision of PB 26805). (Army-Navy Aeronautical Standard Drawing (Design) AND 10151, Rev.). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87399. U. S. AERONAUTICAL BOARD. Engines, process for preparation for storage and shipment of turbo-prop. (Army-Navy Aeronautical Specification AN-E-24). Dec 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 88045. U. S. AERONAUTICAL BOARD. Envelope-engine protective (for O-170 engines). (Army-Navy Aeronautical Standard Drawing AN 4156). Jan 1948. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 88046. U. S. AERONAUTICAL BOARD. Envelope-engine protective (for O-290 engine). (Army-Navy Aeronautical Standard Drawing AN 4157). Jan 1948. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87393. U. S. AERONAUTICAL BOARD. Envelope - protective, reciprocating engine (for use with quick engine change units. (Army-Navy Aeronautical Standard Drawing AN 4107). Dec 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26202-R2. U. S. AERONAUTICAL BOARD. Ferrule-rigid conduit. (Revision 2 of PB 26202). (Army-Navy Aeronautical Standard Drawing AN 3053). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21375-R. U. S. AERONAUTICAL BOARD. Fittings, fluid connections. (Supersedes specification AN-WW-F-366a, Jul 1944). (Army-Navy Aeronautical Specification AN-F-366). May 1947. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21381-R3. U. S. AERONAUTICAL BOARD. Fluid, hydrocarbon standard test. (Revision 3 to PB 21381). (Army-Navy Aeronautical Specification AN-F-42c). Sep 1947. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 49048-A. U. S. AERONAUTICAL BOARD. Fuel, aircraft reciprocating engine. (Amendment 1 to PB 49048). (Army-Navy Aeronautical Specification AN-F-48a). Dec 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 49048-R. U. S. AERONAUTICAL BOARD. Fuel, aircraft reciprocating engine. (Supersedes specification AN-F-48, Oct 1946). (Army-Navy Aeronautical Specification AN-F-48a). Apr 1947. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21389-A. U. S. AERONAUTICAL BOARD. Gages, aircraft pressure. (Amendment 1 to PB 21389). (Army-Navy Aeronautical Specification AN-G-2c, Amendment 1). Apr 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21390-R. U. S. AERONAUTICAL BOARD. Gages, fuel and oil quantity, float type, general specification for. (Supersedes PB 21390). (Army-Navy Aeronautical Specification AN-G-19a). Dec 1947. 16 p. Price: Microfilm-$1.00 - Photostat-$2.00

PB L 87401. U. S. AERONAUTICAL BOARD. Gages, fuel quantity, capacitor type, general specification for. (Army-Navy Aeronautical Specification AN-G-31). Dec 1947. 20 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 87400. U. S. AERONAUTICAL BOARD. Gaskets and sheet gasket material, synthetic rubber and cork composition. (Army-Navy Aeronautical Specification AN-G-32). Dec 1947. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86305. U. S. AERONAUTICAL BOARD. Generators: Electric tachometer (two pole type). (Army-Navy Aeronautical Specification AN-G-30). Oct 1947. 11 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 80785. U. S. AERONAUTICAL BOARD. Handbooks and catalogs, general specification for preparation of. (Supersedes all previous amendments). (Army-Navy Aeronautical Specification AN-H-7b, Amendment 4). May 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86302-R. U. S. AERONAUTICAL BOARD. Housing: Parachute ripcord. (Army-Navy Aeronautical Specification AN 8570). Aug 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26698-R4. U. S. AERONAUTICAL BOARD. Insulator - vibration. (Revision 4 to PB 26698). (Army-Navy Aeronautical Standard Drawing AN 8008). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80786. U. S. AERONAUTICAL BOARD. Interchangeability and replaceability of component parts for airplanes. (Amendment 2; supersedes all previous amendments). (Army-Navy Aeronautical Specification AN-I-21a, Amendment 2). May 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 88050. U. S. AERONAUTICAL BOARD. Inverters: Instrument, rotary. (Army-Navy Aeronautical Specification AN-I-41). Jan 1948. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87398. U. S. AERONAUTICAL BOARD. Jumpers, bonding and current return. (Specification AN-J-1, Drawings AN 749, AN 752). (ANA Bulletin 304b). Dec 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26705-R. U. S. AERONAUTICAL BOARD. Kit: Airplane mooring. (Revision of PB 26705). (Army-Navy Aeronautical Standard Drawing AN 8015). Dec 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26234-R4. U. S. AERONAUTICAL BOARD. Light assembly - Tail cone position. (Revision 4 of PB 26234). (Army-Navy Aeronautical Standard Drawing AN 3092). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26181-R2. U. S. AERONAUTICAL BOARD. Light assembly - ungrounded indicator. (Revision 2 to PB 26181). (Army-Navy Aeronautical Standard Drawing AN 3029, Rev 2). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26190-R3. U. S. AERONAUTICAL BOARD. Light assembly - Vapor proof cabin dome. (Revision 3 of PB 26190). (Army-Navy Aeronautical Standard Drawing AN 3039). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26184-R-6. U. S. AERONAUTICAL BOARD. Light assembly-wing position, wing tip. (Revision to PB 26184). (Army-Navy Aeronautical Specification AN 3033). Nov 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21510-A. U. S. AERONAUTICAL BOARD. Magnesium alloy (1.5 manganese; Sheet and strip. (Amendment 1 to PB 21510). (Army-Navy Aeronautical Specification AN-M-30, Amendment 1). Aug 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21515-R. U. S. AERONAUTICAL BOARD. Measuring and leveling provisions (for aircraft). (Army-Navy Aeronautical Specification AN-M-18b). Oct 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26106-R3. U. S. AERONAUTICAL BOARD. Nut - flared tube, bulkhead and universal fitting. (Revision 3 of PB 26106). (Army-Navy Aeronautical Standard Drawing AN 924). May 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21536-R. U. S. AERONAUTICAL BOARD. Oil; Hydraulic, petroleum base. (Supersedes AN-VV-O-366b Apr 19, 1943). (Army-Navy Aeronautical Specification AN-O-366). Jun 1947. 14 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21538-A. U. S. AERONAUTICAL BOARD. Oil, lubricating aircraft engine. (Amendment 1 to PB 21538). (Army-Navy Aeronautical Specification AN-O-8, Amendment 1). Apr 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86073. U. S. AERONAUTICAL BOARD. Oil; lubrication and preserving. (Army-Navy Aeronautical Specification AN-O-10). Aug 1947. 10 p. Price: Microfilm-$1.00- Photostat-$1.00

PB L 21539-R. U. S. AERONAUTICAL BOARD. Oil; Preservative, hydraulic equipment. (Revision to PB 21539). (Army-Navy Aeronautical Specification AN-O-7a). Oct 1947. 15 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80776. U. S. AERONAUTICAL BOARD. Paint; Temporary identification. (Army-Navy Aeronautical Specification AN-P-85). Jun 1947. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 43115-R. U. S. AERONAUTICAL BOARD. Plug - countersunk hex head pipe. (Revision of PB 43115). (Army-Navy Aeronautical Standard Drawing AN 932). Dec 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21574-A. U. S. AERONAUTICAL BOARD. Plugs, dehydrator. (Supersedes specification AN-P-47a, Jun 21, 1945). (Army-Navy Aeronautical Specification AN-P-47b). Jul 1947. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21543-R. U. S. AERONAUTICAL BOARD. Preservation and packaging of propellers, propeller spares and propeller accessories. (Supersedes specification AN-P-30, Jul 8, 1945). (Revision of PB 21543). (Army-Navy Aeronautical Specification AN-P-30a). Mar 1947. 22 p. Price: Microfilm-$1.00 - Photostat-$2.00

PB L 21590-R. U. S. AERONAUTICAL BOARD. Primer; zinc chromate. (Supersedes specification AN-TT-P-656b). (Army-Navy Aeronautical Specification AN-P-656). Aug 1947. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21604-R. U. S. AERONAUTICAL BOARD. Pump; fluid metering, 2 GPH, type A. (Supersedes specification AN-P-2a, May 13, 1944). (Army-Navy Aeronautical Specification AN-P-2b). Aug 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21607-A3. U. S. AERONAUTICAL BOARD. Pumps; air position indicator. (Amendment 3 to PB 21607). (Army-Navy Aeronautical Specification AN-P-53a, Amendment 3). Sep 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21606-R. U. S. AERONAUTICAL BOARD. Pumps, fluid metering, general specification. (Supersedes specification AN-P-1, Feb 1943). (Army-Navy Aeronautical Specification AN-P-1a). Aug 1947. 12 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21612-A. U. S. AERONAUTICAL BOARD. Pumps 700 GPH power driven fuel. (Amendment 1 to PB 21612) (Army-Navy Aeronautical Specification AN-P-57a, amendment 1) Jul 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86074. U. S. AERONAUTICAL BOARD. Rain repellent kit (for aircraft windows and windshields). (Army-Navy Aeronautical Specification AN-R-24). Jul 1947. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 21624-R. U. S. AERONAUTICAL BOARD. Regulators; Hydraulic pressure. (Supersedes specification AN-R-6a). (Army-Navy Aeronautical Specification AN-R-6b). Jun 1947. 12 p. Price: Microfilm-$1.00

PB L 80790. U. S. AERONAUTICAL BOARD. Sextant - median type. (Revision 2). (Cancelled Apr 17, 1947). (Army-Navy Aeronautical Standard Drawing AN 5852). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86071. U. S. AERONAUTICAL BOARD. Soldering process; general specification for. (Army-Navy Aeronautical Specification AN-S-62). Sep 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26322-R. U. S. AERONAUTICAL BOARD. Switch - class D limit. (Revision of PB 26322). (Army-Navy Standard Aeronautical Drawing AN 3216, Rev.). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26323-R. U. S. AERONAUTICAL BOARD. Switch assembly - plunger type, inclosed limit. (Revision of PB 26323). (Army-Navy Aeronautical Standard Drawing AN 3217). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26324-R. U. S. AERONAUTICAL BOARD. Switch assembly - roller type inclosed limit. (Revision of PB 26324). (Army-Navy Aeronautical Standard Drawing AN 3218). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26332-R. U. S. AERONAUTICAL BOARD. Switch-three hole mounting four pole toggle. (Revision of PB 26332). (Army-Navy Aeronautical Standard Drawing AN 3227). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

Aeronautics (contd)

PB L 21707-A. U. S. AERONAUTICAL BOARD. Table; differential pressure. (Army-Navy Aeronautical Specification AN-T-81). Sep 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21712-A2. U. S. AERONAUTICAL BOARD. Tape; nylon reinforcing. (Supersedes all amendments). (Army-Navy Aeronautical Specification AN-T-83, Amendment 2). Aug 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21716-A2. U. S. AERONAUTICAL BOARD. Tests; Aircraft welding operators's certification. (Amendment to PB 21716-A). (Army-Navy Aeronautical Specification AN-T-38a, Amendment 2). Sep 1947. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21731-R. U. S. AERONAUTICAL BOARD. Toluene. (Supersedes specification AN-R-T-541). (Army-Navy Aeronautical Specification AN-T-541). Jun 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21746-R. U. S. AERONAUTICAL BOARD. Tubes: Inner, aircraft landing, nose, tail and beaching tire. (Revision of PB 21746). (Army-Navy Aeronautical Specification AN-T-78a). Jan 1948. 24 p. Price: Microfilm-$1.00 - Photostat-$2.00

PB L 88049. U. S. AERONAUTICAL BOARD. Tubing: Steel, corrosion resisting, 18 CR - NI, hydraulic system. (Army-Navy Aeronautical Specification AN-T-86). Jan 1948. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87395. U. S. AERONAUTICAL BOARD. Valves, hydraulic check. (Specification AN-V-5, Drawings AN 6207, AN 6249). (ANA Bulletin 1531). Dec 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21779-A2. U. S. AERONAUTICAL BOARD. Valves, hydraulic check. (Supersedes specification AN-V-5c, Feb 1946). (Army-Navy Aeronautical Specification AN-V-5d). Sep 1947. 14 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21784-A. U. S. AERONAUTICAL BOARD. Valves: Hydraulic shuttle. (Army-Navy Aeronautical Specification AN-V-3a, Amendment 1). Nov 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87396. U. S. AERONAUTICAL BOARD. Valves, hydraulic shuttle. (Specification AN-V-3, Drawings AN 6209, AN 6217. (ANA Bulletin 118b). Dec 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21798-A3. U. S. AERONAUTICAL BOARD. Vibration tests of fuel, oil and miscellaneous tanks; Process for. (Amendment 3 to PB 21798). (Army-Navy Aeronautical Specification AN-V-7, amendment 3). Sep 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 88047. U. S. AERONAUTICAL BOARD. Voltmeters: 0-150 volt 400 cycle alternating current. (ANA Bulletin 201b). Jan 1948. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21811-A. U. S. AERONAUTICAL BOARD. Wheel and brake assemblies; land type and amphibious type aircraft. (Supersedes specification AN-W-6, Sep 1942). (Army-Navy Aeronautical Specification AN-W-6a). Apr 1947. 15 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 21815-A2. U. S. AERONAUTICAL BOARD. Wire, iron and constantan thermocouple. (Amendment 2, superseding all previous amendments). (Army-Navy Aeronautical Specification AN-W-8b). Jan 1948. 4 p. Price: Microfilm-$1.00. Photostat-$1.00

PB L 21816-A2. U. S. AERONAUTICAL BOARD. Wire; Metal spraying. (Supersedes all amendments to PB 21816). (Army-Navy Aeronautical Specification AN-W20, amendment 2). Aug 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 26887-R4. U. S. AERONAUTICAL BOARD. Wiring diagram - remote camera installation (bombardment aircraft). (Revision 4 of PB 26887, cancelled Apr 14, 1947). (Army-Navy Aeronautical Standard Drawing (Design) AND 10442). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86296 - PB L 86298, PB L 86999, PB L 88041, and PB L 88556 - PB L 88558. U. S. AIR FORCE. Air technical intelligence: Technical data digest. v. 12, Nos. 9-12; v. 13, Nos. 1-4. 1947-1948. Paging and prices as follows:

PB	Number	Date	Pages	Prices: Micro.	Photo.
L 86296	v.12, No. 9	Nov 1, 1947	47	$2.00	$5.00
L 86297	v. 12, No. 10	Nov 15, 1947	41	2.00	5.00
L 86298	v.12, No. 11	Dec 1, 1947	49	2.00	5.00
L 86999	v.12, No. 12	Dec 15, 1947	49	2.00	5.00
L 88556	v.13, No. 1	Jan 1, 1948	45	2.00	5.00
L 88557	v.13, No. 2	Jan 15, 1948	40	1.75	4.00
L 88041	v.13, No. 3	Feb 1, 1948	44	2.00	5.00
L 88558	v.13, No. 4	Feb 15, 1948	50	2.00	5.00

This digest is issued semi-monthly as a complement to the Air Technical Index of classified air technical documents.

PB L 88042. U. S. ARMY AIR FORCES. Dictionary of aeronautics and allied fields, German-English; second interim edition. Dec 1946. 495 p. Price: Microfilm-$7.00 - Photostat-$50.00

PB L 85588. U. S. NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS. Subject headings for index of NACA publications. Sep 1947. 31 p. Price: Microfilm-$1.75 - Photostat-$4.00

PB L 86069. ANDERSON, JOSEPH L. and TKAC, VICTOR B. High-speed wind-tunnel tests of a twin-fuselage pursuit airplane. (Natl Advisory Committee for Aeronautics Rept A-75; Memo Rept A6D03). Apr 1946. 102 p. Price: Microfilm-$3.50 - Photostat-$11.00

At the request of the Air Technical Service Command, U. S. Army Air Forces, a 0.22-scale model of a twin-fuselage pursuit airplane was built and tested at the Ames Aeronautical Laboratory. The tests of this model were made in order that the aerodynamic characteristics of the airplane, especially at high speed, might be predicted. The results shown in this report consist of force data for the model and critical Mach numbers of parts of the model as determined from pressure-distribution measurements. The results indicate that a diving tendency of the airplane can be expected at Mach numbers above 0.70 at lift coefficients from 0 to 0.4. There is an indication that the Mach number at which the airplane would first experience a diving tendency for lift coefficients from 0 to 0.2 can be increased if the critical speed of the radiator enclosures is increased, and the wing-fuselage-juncture fillets are improved.

PB L 81307. APPLEYARD, and KLUGE, R. W. Part I. Targets visited; Part II. Data reference list; Part III. Detailed report. (CIOS ARCO Rept 5A). n. d. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00

Part I of this report deals with the Junker's Aircraft Company operations, including its dispersed divisions and important subcontractors. This part also summarize the type of information found at each target, and the German personnel contacted. This team was interested mainly in aircraft engineering information, and did not attempt to study production methods or system, nor to gather information on airplanes that had been in production for some times. The targets visited are listed. Part II, a list of data, drawings, photographs, and items obtained from the various targets, is omitted. Part III is a detailed report of the information obtained from the trip, classified by subject.

PB L 81311. BAUR, FRED J. German aircraft design. (CIOS ARCO Rept 11A). n. d. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

During this latter period of the war, the German aircraft industry had been making radical changes in aircraft design. As the war progressed unfavorably for the Germans, in the North, a great deal of the experimentation and research laboratories were moved to the central and southern part of the country. The Messerschmitt organization located originally in Augsburg had moved the engineering research personnel to Oberammergau in the Munich area. It was at this research laboratory the project bureau personnel were interrogated. This report gives data and information obtained. Design comparison, and comparison table of 6-engine bombers with conventional power plants and propellers are included.

PB L 86514. BEELER, DE E. and WILLIAMS, WALTER C. Flight tests of dive-recovery flaps on an XP-51 airplane. (Natl Advisory Committee for Aeronautics Rept L-778; ACR L5D20a) May 1945. 35 p. Price: Microfilm-$1.75 - Photostat-$4.00.

A flight investigation was made to determine the effectiveness of dive-recovery flaps installed on the XP-51 airplane as a safety device for recovery from contemplated terminal-velocity dives. This dive-recovery-flap installation is described and results are presented of measurements obtained during stick-free pull-ups and pull-outs made by deflecting the dive-recovery flaps to two selected values of flap angle. Tests were made for a range of Mach numbers to 0.76 at an altitude of approximately 20,000 feet. The results of the tests showed that the flap effectiveness decreased after a Mach number of 0.65 was reached and indicated that a satisfactory dive recovery could be made by deflecting the dive-recovery flaps 21.5° at Mach numbers up to the estimated terminal Mach number of the airplane. Results calculated from data obtained in tests using a 30° flap deflection indicated that the design load factor may be exceeded during high-speed dive recoveries at altitudes below 15,000 feet. The tests further showed that no buffeting occurred when the flaps were deflected and that no rolling of the airplane was encountered during tests when the flaps were deflected unequally.

PB L 87347. BREWER, C. W. and RICKEY, E. A. Tests of a 1/7 scale powered model of the Kaiser tailless airplane in the Langley full-scale tunnel. (Natl Advisory Committee for Aeronautics Rept L-531; Memo Rept L6C13). Mar 1946. 90 p. Price: Microfilm-$3.00 - Photostat-$9.00

A 1/7-scale powered model of the Kaiser tailless airplane has been investigated in the Langley full-scale tunnel in order to determine its general aerodynamic characteristics and to estimate, from these results, the probable stability and control characteristics of the airplane. The results of the tests are presented in this report. The estimated flying qualities of the Kaiser tailless airplane, determined from the 1/7-scale test results, are to be presented in a separate report. The maximum lift coefficient with the propellers' windmilling and controls neutral was measured to be 1.07; this value of $C_{L_{MAX}}$ is decreased to 0.98 for the maximum up-elevator deflection of 30°. The wing stalls first along the trailing edge and progresses forward along a constant chord line enveloping the outer panels before the center section is materially affected. The profile drag coefficient, with propellers removed, is estimated to be 0.0130 with the model at approximately the zero-lift attitude. The pitching-moment results indicate that, for the center-of-gravity location of 20 percent of the mean aerodynamic chord, the model is statically stable longitudinally for all power conditions except for windmilling-propeller operation at high angles of attack.

PB L 85556. BREWER, GERALD W. Tests of the Northrop MX-334 glider airplane in the NACA full-scale tunnel. (Natl Advisory Committee for Aeronautics Rept L-528). Jan 1944. 73 p. Price: Microfilm-$2.75 - Photostat-$8.00

The results of this investigation are of particular interest since the MX-334 is an all-wing glider-type airplane having neither a conventional fuselage nor vertical surfaces. The primary purpose of these tests was to obtain sufficient data with which to determine the longitudinal and lateral stability and control characteristics of the airplane. In addition, this memorandum report contains the results of tests that were made to: (1) determine a suitable wingtip leading-edge slat arrangement; (2) establish a value of the minimum drag coefficient; (3) determine the effects on the directional stability characteristics of the airplane of the addition of vertical fins; and (4) measure the effectiveness of the air-operated directional control system. One table, 3 photographs, 8 drawings and 40 graphs are included.

PB L 85561. CRANE, H. L. and others. Measurement of flying qualities of a Douglas A-26B airplane (AAF no. 41-39120). I. Longitudinal stability and control characteristics. (Natl Advisory Committee for Aeronautics Rept L 605; Memo Rept L4L06). Dec 1944. 73 p. Price: Microfilm-$2.75 - Photostat-$8.00

Flight tests have been made to determine the flying qualities of a Douglas A-26B airplane. The results of these tests to determine the longitudinal stability and control characteristics are presented in this report, part I. Four photographs, 42 graphs, and four sketches are included. The results of the tests to determine the lateral and directional stability and control characteristics are presented in part II of this report. PB L 81719.

PB L 86994. DAWSON, JOHN R. and JARVIS, GEORGE A. Ditching tests with a 1/10 size model of the Army A-20A airplane. I - Calm-water tests in NACA tank no.2. (Natl Advisory Committee for Aeronautics Rept L-584). Nov 1943. 20 p. Price: Microfilm-$1.25 - Photostat-$2.00

The tests described in this report are the first of a series of tests to determine the behavior of landplanes when they are forced to land on the water. (The emergency landing of

a landplane on water is called "ditching.") The tests were made in NACA tank no. 2 with scale dynamic models. Tables and photographs are included.

PB L 81993. ERICKSON, ALBERT L. and NELSON, WARREN H. High-speed wind-tunnel tests of semispan horizontal tails with fabric-covered and metal-covered elevators of a bomber airplane. (Natl Advisory Committee for Aeronautics Rept A-83; Memo Rept A4L18). Dec 1944. 54 p. Price: Microfilm-$2.25-Photostat-$6.00

This report contains the results of tests of a full-scale semispan horizontal tail plane of a bomber airplane. The effects of fabric distortion on the aerodynamic characteristics of the elevator are determined by comparing the aerodynamic characteristics of a fabric-covered elevator with those of a metal-covered elevator. In addition, the results of cutting holes in the balance seal, the effect of fixing transition, the tab effectiveness both sealed and unsealed, and the section drag of this tail plane are presented. The results of the tests show that fabric deformation can cause extreme changes in stick force at high speed. At 0.72 Mach number, the calculated stick force per unit normal acceleration for the fabric-covered elevator was three times the force for the metal-covered elevator. It is also shown that the tab effectiveness can be trebled by sealing the gap at the leading edge of the tab.

PB L 85559. FEIGENBAUM, D. Estimation of the performance and longitudinal stability and control of a lifting body type of cargo airplane from tests of simplified models. (Natl Advisory Committee for Aeronautics Rept L 541; Memo Rept L5E09a) Jun 1945. 71 p. Price: Microfilm-$2.75 - Photostat-$8.00

Tests were made in the Langley stability tunnel to compare the drag of airplane configurations having conventional bodies with that of an airplane configuration intended to carry cargo in a detachable airfoil-shaped body. The results of these tests are presented graphically. An analysis of the performance and longitudinal stability and control characteristics of a lifting-body cargo airplane is also presented, and this type is compared with a more conventional cargo airplane. Comparison of the polars obtained by the analysis with the experimental results obtained for a specific model shows that the methods used will give reasonably good comparative performance estimates. Although the specific assumptions used may be open to question, the comparison of the proposed design with a conventional airplane indicates the practicability of the design. No further investigation of the general aerodynamic characteristics of the lifting-body type of airplane is considered necessary.

PB L 85581. FISHER, LLOYD J. and STEINER, MARGARET F. Ditching tests with a 1/12 size model of the Army B-26 airplane in NACA tank No. 2 and on an outdoor catapult. (Natl Advisory Committee for Aeronautics Rept L 619) Aug 1944. 38 p. Price: Microfilm-$1.75 - Photostat-$4.00

In accordance with a request by the Army Air Forces, Materiel Command, tests were made at the Langley Memorial Aeronautical Laboratory, Langley Field, Va., with a 1/12-size dynamic model of the Army B-26 airplane to determine its behavior when landed on water. Landings were made in calm and rough water. Various conditions of damage, landing attitude, speed, and flap setting were simulated. Maximum longitudinal decelerations and the lengths of landing runs were recorded, and the general behavior of the model was observed. Motion pictures were taken of some of the landings in both smooth and rough water. The conclusions based on tests of the model are (1) The B-26 airplane should be landed in a laterally level position at as light a weight as possible with flaps down and at a slow speed in a medium-high attitude with the fuselage center line at an angle of 6° to 10° with the horizontal (not too near the stalling region). (2) When appreciable wind exists, this airplane should be landed into the wind and across the waves in order to land at the lowest possible speed. When the wind is light and the waves are regular, landing along the swells is preferable to landing across the swells. (3) Structural failure of parts such as the bomb-bay doors or waist-gun doors will not seriously affect the dynamic behavior of the airplane. (4) The crew should brace themselves with the expectation of withstanding fairly high decelerations (4g to 7g).

PB L 85578. FISHER, LLOYD J. and STEINER, MARGARET F. Ditching tests with a 1/16-size dynamic model of the Army B-24 airplane in Langley tank No. 2, and on an outdoor catapult. (Natl Advisory Committee for Aeronautics Rept L 620; Memo Rept L5D07) Apr 1945. 45 p. Price: Microfilm-$2.00 - Photostat-$5.00

Tests were conducted to determine the best way to ditch the Army B-24 airplane in calm and rough water and to determine its probable ditching performance. A dynamically similar model of the B-24 airplane was ditched in calm water in tank No. 2 and in calm and rough water from an outdoor catapult. Its behavior was ascertained by making visual observations, by recording maximum decelerations, and by taking motion-picture records of the landings. Conclusions based on the tests are that a water landing with a B-24 airplane should be made at as low a vertical and horizontal velocity as possible. A medium (4° or 5°) attitude ditching with flaps down appears to be slightly preferable, and if possible, the airplane should be ditched parallel to the waves. Decelerations of about 5g are to be expected. A hydroflap was found to be a very effective ditching aid for preventing dives.

PB L 86058. FULLMER, FELICIEN F., JR. Two-dimensional wind-tunnel investigation of six airfoil sections for the wing of the Vega XP2V-1 airplane. (Natl Advisory Committee for Aeronautics Rept L-681; Memo Rept L5121) Oct 1945. 32 p. Price: Microfilm-$1.75 - Photostat-$4.00

An investigation was conducted in the Langley two-dimensional low-turbulence pressure tunnel of six airfoil sections for the wing of the Vega XP2V-1 airplane. Two of these sections, the NACA 65_3-515 (modified) $a = 1.0$ and the Lockheed L-12A airfoils were tested as possible tip sections and the remaining four were tested as possible root sections for the wing of the subject airplane. The Vega airfoil was also tested with a 30-percent chord Fowler type flap. The general aerodynamic characteristics were determined for each of these airfoils in a smooth condition and with standard leading-edge roughness. The tests of the airfoil-flap model were made to determine the effect of a flap gap seal and Reynolds number on the lift characteristics for intermediate flap deflections and to determine the best gap dimension for a flap deflection of 32°. The results indicate that the aerodynamic characteristics of no one airfoil in the smooth condition were superior in all respects to those obtained for any of the other airfoils.

PB L 86995. GANZER, VICTOR M. The effects of a highly cambered low-drag wing and of auxiliary flaps on the high-speed aerodynamic characteristics of a twin-engine pursuit airplane model. (Natl Advisory Committee for Aeronautics Rept A-90). Feb 1944. 63 p. Price: Microfilm $2.50 - Photostat-$7.00.

This report presents the results of tests of a model of a twin-engine pursuit airplane. Two wings were investigated, an NACA 230-series wing and a highly cambered NACA 66-series wing. Auxiliary control flaps were tested in combination with each of the wings. Data showing the comparison of the high-speed aerodynamic characteristics of the model when equipped with each of the wings, the effect of the auxiliary control flaps on the aerodynamic characteristics, and the elevator effectiveness for the model with the 66-series wing are presented.

PB L 86209. GORANSON, FABIAN R. Flight tests of an SB2C-1 airplane with a production and tilted propeller axis. (Natl Advisory Committee for Aeronautics Rept L-675; Memo Rept L5E19a) May 1945. 31 p. Price: Microfilm-$1.75 - Photostat-$4.00

Flight tests have been made to measure the changes in static longitudinal stability due to tilting the propeller axis of an SB2C-3 airplane downward 3½°. The results of these tests show that tilting the propeller axis downward was beneficial in that the stick-free neutral point moved aft 1 to 3 percent mean aerodynamic chord for the climb condition, 1 percent in the approach condition, and 2 to 5 percent in the wave-off condition; however, this increase in stability was appreciated by the pilot only at a forward center-of-gravity position where the airplane was unstable with the standard engine but became stable when the tilted engine was installed. With the tilted engine, trim forces due to power changes were reduced by 25 percent of the values obtained with the standard engine installation.

PB L 87814. HENTRICH, PAUL. Anti-icing system of Ju 288 heavy bomber. (AAF T-2 Translation 1908). Jan 1945. 33 p. Price: Microfilm-$1.75 - Photostat-$4.00

Modifications on anti-icing system, made to conserve heat, obtain periodic de-icing instead of anti-icing. New system consists of highly-heated strips on stagnation line. Old and new systems are compared for amount of heat needed and for efficiency.

PB L 85586. HILL, PAUL R. and CRIGLER, JOHN L. The effect of altitude on bomber performance. (Natl Advisory Committee for Aeronautics Rept L 5A6). Oct 1943. 46 p. Price: Microfilm-$2.00 - Photostat-$5.00

The chief emphasis in this report is placed on range performance and charts are first presented giving range as a function of wing loading, power loading, and design altitude. Performance selection charts are then presented which show the high speed, the rate of climb at design altitude, the take-off run at sea level and the range. The charts are presented for airplanes with design altitudes of 10,000, 20,000, 30,000, and 40,000 feet. These charts consist of performance curves on coordinates of power loading and wing loading so that altitude comparisons may easily be made for constant values of these fundamental parameters. In all thirty-seven charts are included.

PB L 87856. HOHENEMSER, K. The power required of the ideal helicopter. (AAF-T-2 Translation 1045; ZWB TB 11-6). Jan 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

A brief synopsis of a treatise by G. Sissingh in TB Vol 11, 1944, No. 3, p. 69, concerning the power requirements of a helicopter with respect to parasite drag of fuselage disregarding the profile drag of the blade.

PB L 86054. IVEY, H. REESE and others. Generalized performance selection charts for single-engine pursuit airplanes. (Natl Advisory Committee for the Aeronautics Rept L-673). Feb 1943. 74 p. Price: Microfilm-$2.75-Photostat-$8.00

The NACA has carried out an investigation of the effect of wing loading, power loading, and aspect ratio on the performance of pursuit airplanes. The study is based on data combined from specifications, wind-tunnel and flight tests of various modern fighter airplanes, and the results are presented on graphs that show the performance that may be obtained by airplanes having an aerodynamic cleanness that is approximately the best found in present production airplanes. For the purpose of this report, the charts are prepared for airplanes powered by one 2000-horsepower radial air-cooled engine, but are placed on coordinates that allow their use for airplanes of different power for the determination of trends.

PB L 85566. IVEY, H. REESE and others. Performance selection charts for gliders and twin engine tow planes. (Natl Advisory Committee for Aeronautics Rept L-537; Memo Rept L5E04). May 1945. 106 p. Price: Microfilm-$3.50 - Photostat-$11.00

This report presents performance charts for gliders and twin-engine tow planes. Three sets of charts are presented showing the performance of gliders having different degrees of aerodynamic and structural refinement. For any glider, the charts show the gliding angle, the useful load, the stalling speeds, the power required for level flight at various speeds and the power required while climbing at various speeds. The tow-plane charts show the performance which could be obtained from tow planes powered by two 2000-horsepower engines. The tow-plane charts present the stalling speeds, power required for level flight at various speeds, and the power required while climbing at various speeds. Charts also show the range for any combination of tow plane and gliders.

PB L 86055. JACKSON, RICHARD and HILLENDAHL, WESLEY H. Flight tests of several exhaust gas to air heat exchangers. (Natl Advisory Committee for Aeronautics Rept A-46; AR Rept 4C14). Mar 1944. 66 p. Price: Microfilm-$2.50 - Photostat-$7.00

Thirteen exhaust-gas-to-air heat exchangers have been tested in flight to determine the practicability of the use of such heat exchangers in the thermal ice-prevention systems on aircraft. The results, given in the form of performance charts, show that exhaust-air heat exchangers constitute an excellent source of heated air for aircraft ice prevention and that they can be constructed to withstand the thermal and vibrational stresses to which they are subjected when installed in an airplane exhaust system. A comparison of the performance characteristics of the four types of exhaust-air heat exchangers tested in this investigation shows that no particular type is distinctly superior in all respects to the other types.

PB L 85563. JARVIS, GEORGE A. and KOLBE, CARL D. Ditching tests of a 1/8 size model of the Navy SB2C-1 airplane (Army A-25) in Langley tank No. 2 and on an outdoor catapult. (Natl Advisory Committee for Aeronautics Rept L-622; Memo Rept L5L07) Jan 1946. 38 p. Price: Microfilm-$1.75 - Photostat-$4.00

Tests were made to determine the best way to land the SB2C-1 airplane in calm and rough water and to determine its probable ditching performance. A 1/8-size dynamically similar model of the SB2C-1 airplane was ditched in Langley tank No. 2 and in calm and rough water at the outdoor catapult. The behavior of the model was determined by making visual observations by recording the maximum longitudinal decelerations and by taking motion pictures of the ditchings. The following conclusions were drawn from the results of the tests: (1) The airplane should be ditched in a normal tail-down landing attitude (thrust line at 15°) with the flaps half down; (2) In rough water, ditchings should be made along the wave crests when feasible. If a strong cross wind exists, it may be necessary to land across the waves and, in such a case, an attempt should be made to have the tail of the airplane touch the windward side of a wave; (3) If the bomb-bay doors do not fail, skipping will probably occur, but if the bomb-bay doors do fail, an event which probably will occur in the full-scale airplane, a dive may result; (4) If one wing tip digs into the water, a violent turn may result; (5) The arresting gear hook should not be extended in ditching; (6) A slight improvement in the ditching behavior is obtained when the tail wheel is retracted.

PB L 85576. JARVIS, GEORGE A. and STEINER, MARGARET F. Ditching tests with a 1/10-size model of the Army A-20A airplane in Langley tank No. 2 and on an outdoor catapult. (Natl Advisory Committee for Aeronautics Rept L 618; Memo Rept L4K29a) Nov 1944. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00

Tests with a dynamically similar model of the Army A-20A airplane were made to determine the best way to land the airplane in calm and rough water and to determine its probable ditching performance. The behavior was studied by making visual observations, by recording longitudinal decelerations, and by taking motion pictures of the landings. From these studies the conclusions that follow were drawn. If the waves are short, or the crests are parallel to the flight path, or the water is calm, a smooth ditching with the nose remaining clear will probably result if the airplane is landed laterally level in a tail-down attitude. The airplane should be

in the lightest possible weight condition; partial power and full flaps should be used to make a landing as slowly as possible. In a swell the airplane should be landed parallel to the crest of the swell, if possible. If there is no swell, the airplane should be ditched along the waves across moderate winds; but when the condition of the sea indicates that higher winds exist, it may be advisable to land into the wind and attempt to contact a wave near the top on the windward side.

PB L 87574. JARVIS, GEORGE A. and STEINER, MARGARET F. Ditching tests with a 1/11 size model of the Army B-25 airplane in NACA tank no. 2 and on an outdoor catapult. (Natl Advisory Committee for Aeronautics Rept L 623). Oct 1944. 28 p. Price: Microfilm-$1.50 - Photostat-$3.00
The tests were made to determine the best way to land the B-25 airplane in calm and rough water and to determine its probable ditching performance. A dynamically similar model of the B-25 airplane was landed in calm water in tank no. 2 and in calm and rough water from the outdoor catapult. Its behavior was determined by making visual observations, by recording longitudinal accelerations, and by taking motion pictures of the landings. By landing with flaps down in a tail-down attitude at as slow a speed as possible, smooth straight landing runs will probably result in calm water. In moderate winds and regular waves the airplane should be landed along the wave. If the wind is strong or the waves are irregular, the airplane should be landed into the wind; an attempt should be made to contact a wave just after a crest has been passed. Landing in the level attitude will probably result in skipping, porpoising, of swerving.

PB L 86511. JOHNSON, HAROLD I. and others. Measurements of the flying qualities of a Bell P-39D-1 airplane (A.A.F. no. 41-26376). (Natl Advisory Committee for Aeronautics Memo Rept L-602). Sep 1943. 84 p. Price: Microfilm-$3.00 - Photostat-$9.00
The tests were conducted during February and March of 1943 and consisted of 21 flights requiring a total flying time of approximately 23 hours. This report is a summary covering all data obtained in the flying-qualities investigation. Three photographs, 2 drawings, and 50 graphs are included.

PB L 87802. JOHNSTON, J. FORD and others. Flight investigation of factors affecting the carburetor ram and nacelle drag of an A-26B airplane. (Natl Advisory Committee for Aeronautics Rept L-740; Memo Rept L6F21). Jul 1946. 42 p. Price: Microfilm-$2.00 - Photostat-$5.00
Flight tests of an A-26B airplane have been conducted to determine the changes in maximum speed, as affected by changes in carburetor ram and aerodynamic refinement of the nacelles, resulting from the addition of sealed spinners and modification of the charge air system, cowling, and nacelle afterbodies. The changes in nacelle drag resulting from these modifications were measured independently by means of a revolving wake survey rake behind the nacelle and boundary layer rakes on the cowling, and provide a quantitative check of the speed measurements as well as a means of analyzing the components of nacelle drag.

PB L 85550. KATZOFF, S. and FINN, ROBERT S. Effects of external fuel tanks and bombs on critical speeds of aircraft. (Natl Advisory Committee for Aeronautics Rept L 726; C Bulletin L5K27). Feb 1946. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00
The danger of shocks and separation in high-speed flight due to the presence of externally carried fuel tanks and bombs is pointed out, and a rough analysis of the phenomena involved is attempted. A discussion is given of the application and limitations of the superposition methods for calculating local velocities in the region between the wing and the external stores, and for predicting critical Mach numbers. Some suggestions for improved designs are also presented.

* PB L 85597. LEGGETT, D. M. A. and HOPKINS, H. G. Work done during the War by the static unit of the D.V.L. (BIOS Final Rept 140, Item 25). Oct 1945. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00
Taken all around the investigation confirmed earlier impressions that the Germans had not made any great progress in theoretical structural research work, although their intention to carry out an extensive investigation into problems concerning swept-back wings is interesting. A list was obtained of all reports published during the war by the Static Unit.

*PB L 87876. LEIGH, J. H. and others. Developments in aircraft construction using plastic, paper, veneer and thin metal in sandwich and other formations. (BIOS Final Rept 1194, Item 25). Aug-Sep 1946. 38 p. Price: Microfilm-$1.75 - Photostat-$4.00
A summary of some synthetic materials produced by Dynamit A. G., Troisdorf, and I. G. Farben, Leverkusen is shown. Other targets visited were Focke-Wulf, Detmold; Erwin Behr, Wendlingen; and Messerschmitt, Garmisch. Thirty photographs are attached.

PB L 87563. LUNDQUIST, EUGENE E. Preliminary data on buckling strength of curved sheet panels in compression. (Natl Advisory Committee for Aeronautics Rept L-690). Nov 1941. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00
This paper presents the results obtained in compression tests of eight stiffened panels. The radius-thickness ratio of the skin between stiffeners varied from 400 to infinity. From these few tests, it is concluded that the critical compressive stress for a curved sheet between stiffeners is equal to the larger of the following: (a) The critical compressive stress for an unstiffened circular cylinder of the same radius-thickness ratio. (b) The critical compressive stress for the same sheet when fl-t

PB L 86869. MACDOUGALL, GEORGE F., JR and SCHNEITER, LESLIE E. Spin tests of a 0.059-scale model of the Curtiss-Wright XP-55 airplane. (Natl Advisory Committee for Aeronautics Rept L-650; Memo Rept L5G31a). Aug 1945. 40 p. Price: Microfilm-$1.75 - Photostat-$4.00.
Spin tests have been performed in the Langley 20-foot free-spinning tunnel on a 0.059-scale model of the Curtiss-Wright XP-55 airplane. For the tests, the model was modified as recommended by the NACA to improve the longitudinal-trim characteristics by installing a large elevator with increased deflections and large wing tips with extensions to the wing-tip trimmers. The spins were oscillatory in pitch and roll at a large average angle of attack and reversal of the rudders fully and rapidly stopped the rotation. After the rotation stopped, the model nosed down into a dive when the stick was forward or free longitudinally for erect spins and when the stick was back or free longitudinally for inverted spins.

PB L 87575. MIGOTSKY, EUGENE. Full-scale-tunnel performance tests of the PV-2 helicopter rotor. (Natl Advisory Committee for Aeronautics Rept L-545; Memo Rept L5C29a). Apr 1945. 51 p. Price: Microfilm-$2.25 - Photostat-$6.00
An investigation has been conducted at the Langley full-scale tunnel to obtain basic performance data for the PV-2 helicopter rotor. Blade motion as well as rotor forces and power were measured for the static-thrust condition and for a limited range of forward-flight conditions. Only the force-test data are presented in this paper. The static-thrust data are presented as the variation of thrust coefficient with torque coefficient. The forward-flight performance data have been reduced to lift coefficients and drag-lift ratios, and the variation of these parameters with pitch angle and tip-speed ratio are given for a series of spindle-angle settings. In addition, charts of convenient form are prepared from which the performance of a helicopter equipped with such a rotor may be obtained rapidly for the range of conditions covered. The rotor performance is compared with that predicted from

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theoretical studies and the comparison shows that available theories provide reasonably accurate predictions of helicopter performance if the actual blade-section characteristics are used in the calculations. More detailed analysis of the validity of the theories, especially with regard to second-order effects, is not justified at present because the data available are too limited and tunnel effects are not yet completely evaluated.

PB L 86862. MIGOTSKY, EUGENE. Investigation for the development of a high-speed antiaircraft tow target. (Natl Advisory Committee for Aeronautics Rept L-760) Jul 1943. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00

An investigation has been conducted at the NACA full-scale tunnel for the purpose of developing a target which can be towed satisfactorily at high speeds. The tests included drag measurements and visual observations of the stability characteristics of several full-size and 1/3-scale models of sleeve-type tow targets. A few tests were also made to determine the stability characteristics of a rigid-type tow target. The effects of fabric porosity on the drag and stability characteristics of the targets were investigated. Fins were added to some of the targets in an attempt to improve their stability characteristics. The drag coefficients obtained for the currently used targets were found to be excessively high. Reducing the fabric porosity reduced the drag but also decreased the stability of the targets. The addition of fins to sleeve-type targets did not provide satisfactory stability. In general, the English type target, which has a tail diameter larger than the nose diameter and restricts the major portion of the air leakage to the blunt tail, was found to be the most satisfactory of the sleeve-type targets. The rigid-type target, which has a much lower drag than any of the sleeve-type targets, should possess satisfactory stability for high-speed towing.

PB L 85567. MOSKOVITA, A. I. XC-35 gust research project. Analysis of gust measurements. (Natl Advisory Committee for Aeronautics Rept L-552; R Bulletin LAD22). Apr 1944. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00.

Gust size and intensity were measured during the spring and summer of 1941 and 1942 under a wide variety of weather conditions at altitudes up to 34,000 feet. The Army XC-35 airplane was used as the measuring instrument. The gust size and intensity were derived from recorded motions of the airplane and additional data were obtained on meteorological conditions. The average gust-gradient distance was found to be independent of altitude and increased slightly as the true gust velocity increased. The maximum effective gust velocity appeared to be independent of altitude and was about equal to the design value of 32 feet per second. The treatment of the design gust velocity as a true gust velocity, constant with altitude, cannot be recommended on the basis of these data. Gust frequency per mile of rough air decreased with altitude.

PB L 85930. NISSEN, J. M. and PHILLIPS, W. H. Measurements of the flying qualities of a Hawker Hurricane airplane. (Natl Advisory Committee for Aeronautics Rept L-565). Apr 1942. 47 p. Price: Microfilm-$2.00 - Photostat-$5.00

The flying qualities of a Hawker Hurricane airplane were investigated. The tests were conducted at Langley Field, Va., during the period Nov. 25, '41, to Dec. 28, 1941. The tests as described in this report cover extension measurements of stability, controllability, and stalling characteristics. Three photographs, one sketch, and 30 graphs are included.

PB L 86727. OLSEN, ROLAND E. and others. Resistance tests of a 1/16-size model of the Hughes-Kaiser flying boat, NACA Model 183. (Natl. Advisory Committee for Aeronautics Rept L-683) Jun 1944. 42p. Price; Microfilm-$2.00 - Photostat-$5.00.

Resistance tests of a $\frac{1}{16}$-size model of the hull of the Hughes-Kaiser cargo airplane were made in NACA tank no. 1. The results of these tests were required for estimates of the take-off performance and the maximum gross load for take-off. The most recent changes in the form of the hull were incorporated in the model. At hump speeds, with the model free to trim, the trim and resistance were high, which resulted in a load-resistance ratio of approximately 4.0 for a gross load coefficient of 0.75. The addition of chine flare at the stern post caused an increase in positive trimming moments and reduced the trim just beyond hump speed. The addition of breaker strips on the tail extension caused a further reduction in positive trimming moment, the final load-resistance ratio at the hump, free to trim, being approximately 4.8 for a gross load coefficient of 0.75. The results of fixed-trim tests are presented as working charts. Take-off computations using these data, together with estimated aerodynamic lift and drag curves for the flying boat, indicate that the maximum gross load for take-off with 16.6-foot four-blade propellers is 375,000 pounds full-size, and with 18.5-foot four-blade propellers is 400,000 pounds full size. At a gross load corresponding to 400,000 pounds full-size, a take-off is possible in 69 seconds over a distance of 5600 feet. Correcting for scale effect on the frictional resistance reduces the hump resistance 8 percent. By trimming at the lower trim limit of stability at jump speeds, the jump resistance is reduced 14 percent. Trim for minimum water resistance cannot be used at jump speeds because of excessive positive hydrodynamic trimming moments and because lower-limit porpoising would be encountered.

PB L 85575. PARKINSON, JOHN B. A correlation of loadings and afterbody length beam ratios of various flying-boat hulls. (Natl Advisory Committee for Aeronautics Rept L 731; AR Rept L6E28). Jun 1946. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00.

The gross weight, beam, and afterbody length of 12 contemporary flying boats and amphibians with pointed afterbodies are tabulated and correlated. For most of the hulls considered, the afterbody length-beam ratios are shown to be directly proportional to the gross-load coefficients.

PB L 85571. PEARSON, H. A. Acceleration, stress, and deflection measurements on the XB-15 bomber in gusty air. (Natl Advisory Committee for Aeronautics Rept L-540) Jun 1939. 32 p. Price: Microfilm-$1.75 - Photostat-$4.00

Acceleration measurements in gusty air have been accumulated over a period of years in order to determine the loads to which airplanes may be subjected. Most of these data have been obtained with the V-G recorders that have been installed in Army, Navy, and commercial airplanes. Theoretical studies of the load variation while flying through various types of gusts have indicated that the "effective" gust velocities, as obtained from the V-G records, must be supplemented by data on the gust gradients. Consequently, some tests have been made on two airplanes, the Martin XBM-1 and the Aeronca C-2W, in gusty air to gain some information of the gradients to be expected. Although the number of flying hours in these tests is small as compared with the V-G total, they were sufficient to indicate that the critical gust gradient depended upon airplane size, a factor which had been given no particular consideration at that time. Theoretical studies had also indicated that an additional factor called "dynamic overstress" might be of importance in the design of large projected airplanes. For these airplanes it appeared that the relationship between wing period, lag in lift, and gust gradient might be such that the wings in gusts would deflect considerably more than for the case of a static load of the same magnitude. The higher deflections would naturally be accompanied by higher stresses in some of the members of the structure. It thus appeared desirable to conduct experiments on larger airplanes both for the purpose of determining gust gradient distances and for determining the existence of the dynamic over-stress which the theory indicates. The Army Air Corps agreed to cooperate in this project by allowing suitable equipment to be installed in their large XB-15 bomber. This report presents the results of these tests which cover a total of about 70 flying hours on this airplane. These measurements were made under authority granted by the Air Corps in October 1938.

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PB L 86860. PEARSON, HENRY A. and HEADLE, DOROTHY E. Flight measurements by various methods of the drag characteristics of the XP-51 airplane. (Natl Advisory Committee for Aeronautics Rept L-711; Memo Rept L6F12). Jun 1946. 28 p. Price: Microfilm-$1.50 - Photostat-$3.00
The variation of the over-all drag coefficient of the XP-51 airplane was measured in dives up to a Mach number of 0.8. During the tests the airplane was instrumented so that the over-all drag variation was obtained by three methods, each of which employed different combinations of instrumentation. The methods used are termed the accelerometer, the energy, and the dive-angle methods. A discussion of the relative accuracy of the results obtained with each of the methods is given both from the standpoint of instrument accuracy and of the accuracy with which the data may be reduced. It is concluded that with present instruments the accelerometer method yields the most accurate and consistent results. A comparison of the present drag results with those obtained in the wind tunnel indicates that at super-critical Mach numbers the flight values do not rise as rapidly as those from the wind tunnel. A comparison between various sets of flight data indicates that sufficient spread of the data is obtained with present instrumentation that a number of measurements may be required in order to establish a drag variation of reasonable accuracy.

PB L 86284. PHILLIPS, W. H. and others. Measurements of flying qualities of a Curtiss SB2C-1 airplane (no. 00014). (Natl Advisory Committee for Aeronautics Rept L-571). Mar 1944. 94 p. Price: Microfilm-$3.25 - Photostat-$10.00
The tests were conducted at Langley Field, Va., between April and May, 1943. In addition to complete tests of the airplane in its original condition, tests were made to determine the effect of a bobweight in the elevator system, and the effect of seals in the aileron gaps. Fourteen flights and approximately 18 hours of flying time were required to complete the tests. Measurements of structural loads were made on two other Curtiss airplanes. Certain additional information with regard to the flying qualities that was obtained in these investigations is also presented in this report. Three photographs, 5 drawings, and 56 graphs are included.

PB L 86997. RECANT, ISIDORE G. and SWANSON, ROBERT S. Determination of the stability and control characteristics of airplanes from tests of powered models. (Natl Advisory Committee for Aeronautics Rept L-710). Jul 1942. 78 p. Price: Microfilm-$2.75 - Photostat-$8.00.
A technique of testing wind-tunnel powered models has been developed as a result of experience gained in the investigation of the static longitudinal and lateral-stability and control characteristics of several powered models in the NACA 7- by 10-foot wind tunnel. As an important part of this technique, a minimum program of the tests considered necessary to specify satisfactorily the static stability and control characteristics for present-day airplanes has been tentatively established. A discussion of the conditions to be investigated, methods of presenting and interpreting the data, and a suggested operating technique are given. Typical test data, illustrating some of the effects of power on the characteristics of a model of a low-wing single-engine airplane, are also presented.

PB L 87566. REISERT, THOMAS D. Tests of a 1/17 scale model of the XBDR-1 airplane in the NACA gust tunnel. (Natl Advisory Committee for Aeronautics Rept L-539). Feb 1944. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00
Tests were made in the gust tunnel on a $\frac{1}{17}$-scale model of the XBDR-1 airplane to verify the calculated effective gust factor. Tests were made for three gust shapes, one forward velocity, and one wing loading. Theoretical calculations and results of experiments are in agreement for the airplane with a center of gravity at 20 percent mean aerodynamic chord. For aft center-of-gravity positions, the results of an analysis indicate that the effective gust factor is appreciably higher. From the results of the analysis it is recommended that a value of 1.22 be used as the effective gust factor in the design of the XBDR-1 airplane.

PB L 87843. SCHMIDT. Flight tests on static and dynamic directional stability and their rate of influence. Part I. (AAF T-2 Translation 921). Apr 1947. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00
Report includes research on Do 217, Do 18. States desirability of stability in flight. Experiments on empennage and airplane design in relation to stability are presented graphically. "Parachute brake" incorporated in Do 217 experiments. Do 18 research concerned with form and size of rudder, compensation and position of rudder axis of rotation, and center of gravity location.

PB L 87862. SCHUBERT, H. Determination of the magnitude of the guide-beam control constant for the Do-17 M without gyro pilot. (AAF T-2 Translation 1082). Mar 1947. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
On the basis of calculations made in report 86/26 and 34, stability range and magnitude for lateral signal-beam constants are determined mathematically for the two-engine standard bomber Do-17 M. Time constants for the oscillation magnitude are tabulated and graphs showing stability range of the guide beam are included.

PB L 86311. SPAHR, J. RICHARD and CHRISTOPHERSEN, DON R. Measurements in flight of the stability, lateral-control, and stalling characteristics of an airplane equipped with full-span zap flaps and spoiler-type ailerons. (Natl Advisory Committee for Aeronautics Rept A-28) Dec 1943. 149 p. Price: Microfilm-$4.50 - Photostat-$15.00
The stability, lateral-control, and stalling characteristics of an airplane modified to accommodate full-span zap flaps were measured in flight at the Ames Aeronautical Laboratory. The static and dynamic longitudinal and lateral stability was, in general, satisfactory. However, the airplane exhibited some undesirable lateral-control characteristics including excessive friction and elasticity in the lateral-control system and insufficient aileron effectiveness in producing desirable rolling characteristics. By setting the control-force-regulating vanes, with which the upper-surface-type ailerons were equipped, in the nose-up position and by reducing the area of the aileron upper surfaces, it was possible to lighten the lateral control forces without appreciably decreasing the corresponding aileron effectiveness. However, these aileron modifications were not sufficient to effect satisfactory rolling characteristics for all flight conditions. The maximum lift coefficients of the airplane calculated from flight-test data with the full-span flaps up, half extended, and fully extended are 0.01, 2.42, and 2.78, respectively, with rated power applied and 1.48, 2.05, and 2.27, respectively, with power off.

PB L 86459. STEINER, MARGARET F. Ditching behavior of military airplanes as affected by ditching aids. (Natl Advisory Committee for Aeronautics Rept L-647; Memo Rept L5A16) Jan 1945. 29 p. Price: Microfilm-$1.50 - Photostat-$3.00
Planning devices such as hydroflaps and hydrofoils were installed on several dynamically scaled models of military airplanes, and their effectiveness in improving ditching characteristics was determined from tests covering a number of ditching conditions. In general, these ditching aids were found to be of value. The ditching aids tested caused a reduction in the maximum longitudinal (along the fore and aft axis) decelerations and kept the forward part of the fuselage clear of the water during most of the run. In the case of a full-scale ditching this probably would result in less damage to the fuselage bottom and less flooding of the airplane, thus reducing the hazard to the crew. As a background to the model tests, this report presents general information regarding ditching aids and some experimental data obtained during tests on a hydroplane in the impact basin at the Langley Laboratory. Extensive tests with dynamic models were conducted at the Langley Laboratory in tank No. 2 and at an outdoor catapult to investigate the ditching characteristics of military airplanes. It was found in these earlier tests that, in some instances, violent decelerations occurred because of the high hydrodynamic drag of protuber-

ances such as turrets, wing flaps, and nacelles, because of the general shape of the fuselage bottom, or because of the effect of damage to various parts of the fuselage. Also, reports of full-scale ditchings had indicated that damage to the fuselage bottoms and the flooding of the fuselage led to quick sinking of the airplane after a ditching. The earlier tests were accordingly extended to investigate the performance of dynamic models of several military airplanes equipped with ditching aids. These devices were designed to dissipate vertical and angular momentum, prevent the nose and nacelles from digging into the water, and deflect the water so as to reduce loads on the bomb-bay area. This report presents data from tests which were made at an outdoor catapult to investigate the effectiveness of ditching aids.

PB L 87571. STONE, RALPH W., JR. and SCHNEITER, LESLIE E. Calculation of the aileron and elevator stick forces and rudder pedal forces for the Bell XP-83 airplanes (Project MC-511) in spins. (Natl Advisory Committee for Aeronautics Rept L-575; Memo Rept L5H29). Sep 1945. 22 p. Price: Microfilm-$1.25 - Photostat-$2.00.
Aileron and elevator stick forces and rudder pedal forces for the Bell XP-83 (project MC-511) airplane in spins have been calculated. The hinge-moment characteristics of 0.4-scale models of the control surfaces of the XP-83 airplane in attitudes simulating spins, as determined in the Langley 4- by 6-foot tunnel and steady-spin data obtained on a 1/24-scale model of the subject airplane in the 20-foot free-spinning tunnel, have been used in the calculations. The results indicate that the aileron and elevator stick forces may be excessive unless some suitable booster or more highly balanced control surfaces are used. The pilot will be able to move the surfaces only slightly from their normal floating locations. The ailerons will tend to float slightly with the spin (stick right in a right spin) and the elevator will float full up. The rudder pedal forces will be within the capabilities of the pilot.

PB L 87839. STUEPER, JOSEF. Braking of the aircraft by the airscrew. (AAF T-2 Translation 830). May 1947. 72 p. Price: Microfilm-$2.75 - Photostat-$8.00
Active and passive braking principles of an aircraft propeller by corresponding variations of the blade angle for gliding, landing, nose dives, loss of surplus speeds, and for taxiing are described. Experiments to control rotational speeds and suggestions for maintaining constant speeds while passing from normal range into braking positions are explained.

PB L 85524. SWEENEY, HENRY M. and others. Tests on ejection seat catapult. (AAF AMC Eng Div Memo Rept TSEAA-695-66H). Aug 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00
Tests were conducted in order to determine the effects of a shear pin in the T-2 catapult on the acceleration-time diagram. The use of shear pin was found to be undesirable. Table and diagrams are included.

PB L 85565. TARSHIS, ROBERT P. and STEWART, THELMA. Ditching tests with 1/16 size models of the Army B-17 airplane in Langley tank No. 2 and on an outdoor catapult. (Natl Advisory Committee for Aeronautics Rept L-621; Memo Rept L5G24) Apr 1945. 22 p. Price: Microfilm-$1.50 - Photostat-$3.00
Tests with dynamically similar models were made to study the behavior of the Army B-17F and B-17G airplanes when ditched and to determine the best way to land them in calm and rough water. The models were ditched in calm water from the tank No. 2 towing carriage and in calm and rough water from an outdoor catapult. Various landing attitudes, speeds, and conditions of damage were simulated. The model behavior was determined from the study of data obtained by making visual observations, by recording length of run and maximum longitudinal decelerations, and by taking motion pictures of the ditchings. The tests indicated that, in ditchings in smooth water or parallel to the wave crest, the B-17F and B-17G airplanes should be landed in a tail-down landing attitude of about 7° (three-point landing attitude) and with as low a speed as possible. In this type of ditching, slight skipping or porpoising will probably result. In ditchings in rough, breaking water, the nacelles usually dig in and diving or violent turns may result. The model tests indicate it is advantageous to jettison the lower gun turret prior to ditching.

PB L 85585. THEODORSEN, THEODORE and SMITH, N.H. Flutter tests of B-34 fin-rudder-tab system. (Natl Advisory Committee for Aeronautics Rept L 679). Sep 1944. 21 p. Price: Microfilm-$1.50 - Photostat-$3.00.
Tests on the B-34 fin-rudder-tab assembly were performed in the NACA 8-foot high-speed tunnel. Two cases of tab flutter were studied. It was shown conclusively that the frequency of the original or heavy tab was too low and caused coupling with one of the lower bending frequencies. A general conclusion was made that the tab frequency should be considerably higher than the lower modes of the fin-rudder assembly because there is generally a weaker coupling between the tab and the higher mode responses.

PB L 87837. U. S. ARMY AIR FORCES. AIR MATERIEL COMMAND. Structural description: Junkers all-metal airplane JU 290 A-5). (T-2 Translation 766). Nov 1946. 39 p. Price: Microfilm-$1.75 - Photostat-$4.00
Explanations of the component parts of the Ju 290 A-5, complete with illustrations and wiring diagram, with special reference to instrumentation, control systems, retractable landing gear, fuel and oil systems, and the like.

PB L 86021. WEIBERG, JAMES A. and SCHNURBUSCH, ALFRED W. Flying qualities of a high-speed bomber with a dual pusher propeller aft of the empennage as estimated from wind-tunnel tests of a 1/8 scale powered model. (Natl Advisory Committee for Aeronautics Rept A-76; Memo Rept A4K04). Nov 1944. 39 p. Price: Microfilm-$1.75 - Photostat-$4.00
Flying qualities of a high-speed bomber with a dual pusher propeller aft of the empennage, computed from the results of wind-tunnel tests of a 1/8-scale powered model, are presented in this report. The flying qualities are evaluated with respect to the stability and control requirements of the Air Technical Service Command, U. S. Army Air Forces. For the characteristics investigated, the airplane has satisfactory flying qualities except for the following: (a) With aft center of gravity, low stick-free longitudinal stability, flaps up, and possible instability, flaps down; (b) High elevator control forces in landing with forward center of gravity; (c) Insufficient elevator control in take-off; (d) Low rudder-free directional stability.

PB L 87565. WEINBERGER, ROBERT A. and others. Comparison of the compressive strength of panels with Alclad 24S-T61 sheet or with Alclad 24S-T86 sheet riveted to Alclad 24S-T86 hat-section stiffeners. (Natl Advisory Committee for Aeronautics Rept L-587). Apr 1944. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00
Compression tests were made of two groups of panel specimens with hat-section stiffeners. The groups were identical except that the flat sheet of one group was Alclad 24S-T81 and of the other Alclad 24S-T86. Results of the tests are given in tables or charts which show the average stress at which the sheet buckles and the average stress at the maximum load. An increase in strength of several percent was generally obtained by the use of Alclad 24S-T86 sheet instead of Alclad 24S-T81 sheet for the panels with close stiffener spacing and with the effective sheet area at maximum load greater than 20 percent of the total area of the panel.

PB L 85553. WEINBERGER, ROBERT A. and others. Compressive strength of corrugated sheet stiffened panels for Consolidated XB-36 airplane. (Natl Advisory Committee for Aeronautics Rept L 588). Jan 1944. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00.
Compression tests were made of 63 panels stiffened with corrugated sheet. The specimens were constructed from artificially aged alclad 24S-T aluminum alloy with minimum guaranteed yield strengths of 57 and 48 kips per square inch for the flat- and corrugated-sheet materials, respectively. Results of the tests are presented in charts which show the average stresses at the maximum load and at buckling of the sheet.

PB L 86521. WHITE, M. D. and HOOVER, HERBERT H. Flight tests of modifications to improve the aileron control characteristics of a North American XP-51 airplane, (A.C. no. 41-38). (Natl Advisory Committee for Aeronautics Rept L-636) Jun 1942. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
In an attempt to improve the aileron control characteristics of the XP-51 airplane, the deflection range was increased 70 percent to increase the effectiveness and the original concave section was changed to a thick section with beveled trailing edge to provide increased aerodynamic balance. The effects of the modifications were determined in flight by means of NACA recording instruments, the data obtained being in suitable form for direct comparison with those for the original ailerons (reference 1). The results show that the modified ailerons produced a value of pb/2V of about 0.084 with full stick deflection. This value represents an increase in effectiveness over the original aileron installation of about 70 percent at low speed and about 55 percent at high speeds. At high speeds, the rate of roll for a 30-pound stick force was increased by about 20 percent. Additional tests of the modified ailerons at diving speeds are considered desirable to investigate possible effects of compressibility but should be made with new ailerons of lighter construction than those used in the present tests. The effect of the aileron modification on the airplane drag is now being investigated.

PB L 85551. WHITE, MAURICE D. and HOOVER, HERBERT H. Flight tests of beveled-trailing-edge ailerons with various modification on a North American XP-51 airplane (AAF No. 41-38). (Natl Advisory Committee for Aeronautics Rept L 550) Dec 1943. 54 p. Price: Microfilm-$2.25 - Photostat-$6.00
Flight tests have been conducted on a North American XP-51 airplane with several arrangements of beveled-trailing-edge ailerons to determine the most satisfactory arrangement for use on this airplane. The aileron control force and effectiveness characteristics were investigated for average bevel angles of 25°, 27½°, and 32°, and for several arrangements of balancing tabs. The test program included, in addition, the determination of a suitable means for trimming the beveled-trailing-edge ailerons. The results indicate that, as the bevel angles were increased above 25°, the hinge-moment slopes were reduced at small control deflections, but were increased at large control deflections; as a result the variation of stick force with aileron deflection deviated progressively from the approximately linear relationship of the 25°-bevel-angle ailerons, particularly at high speeds. With a bevel angle of 32° the ailerons were overbalanced at indicated airspeeds above 200 miles per hour for aileron deflections below about ±7°. During the investigation, it was found that such factors as misalinement of the ailerons, location of an experimental airspeed boom on the wing ahead of an aileron, and other items tending to disturb the symmetry of boundary-layer flow over the two ailerons caused excessive trim forces and differences in aileron operating forces required for right and left rolls.

PB L 86160. WILLIAMS, WALTER C. and REEDER, JOHN P. Flight measurements of the flying qualities of an F6F-3 airplane (Buaer no. 04776). I. Longitudinal stability and control. (Natl Advisory Committee for Aeronautics Rept L-715, Memo Rept L5B13). Feb 1945. 48 p. Price: Microfilm-$2.00 - Photostat-$5.00
Flight measurements were made of the handling qualities of an F6F-3 airplane. Thirty flights were made covering a period from Feb.1 to May 15, 1944. This report gives results of tests made to determine the longitudinal stability and control of the subject airplane. The remaining portion of the investigation, which includes the lateral and directional stability and control, and the stalling characteristics, will be covered in two later reports. Photographs of the airplane, sketches, graphs and charts are included.

PB L 86864. WILLIAMS, WALTER C. and REEDER, JOHN P. Flight measurements of the flying qualities of an F6F-3 airplane (Buaer No. 04776). II. Lateral and directional stability and control. (Natl Advisory Committee for Aeronautics Rept L-716; Memo Rept L5B13a). Feb 1945. 58 p. Price: Microfilm-$2.25 - Photostat-$6.00
Measurements of the longitudinal stability and control were made and results presented in the previous report, L5B13. This report gives results of tests made to determine the lateral and directional stability and control of the subject airplane. The tests covering the stalling characteristics of the F6F-3 airplane will be described in a third report. Two drawings and forty graphs are included.

PB L 87803. WILLIAMS, WALTER C. Flight tests of a rudder with a spring tab on an F6F-3 airplane (Buaer No. 04776). (Natl Advisory Committee for Aeronautics Rept L 718; Memo Rept L5G19) Mar 1945. 29 p. Price: Microfilm-$1.50 - Photostat-$3.00
Flight tests were made of an F6F-3 airplane having a spring-tab rudder which was designed and constructed by National Advisory Committee for Aeronautics personnel at Langley Field, Va. Measurements were made of the directional stability and control characteristics of the F6F-3 airplane when equipped with this installation. Tests were made with the preload in the springs equivalent to a pedal force of ±50 pounds and with the preload corresponding to ±4 pounds which was equal to the friction in the tab control linkage. The use of the spring-tab rudder with either of the preloads resulted in a lower trim-force change with speed and lower pedal forces in sideslips than that obtained with original F6F-3 rudder. Any oscillations of the rudder or spring tab following an abrupt control deflection were well damped and no tendency to flutter was evident up to an indicated airspeed of 400 miles per hour. Although the tab arrangement with the smaller preload gave rudder forces somewhat lighter than desirable in maneuvers, the pilots preferred this arrangement to the tab with the larger preload because of the ease with which small trim changes could be offset with the more lightly preloaded arrangement.

PB L 86018. WOODWARD, DAVID R. and ZECK, HOWARD. Spray characteristics and take-off and landing stability of several modifications of a 1/8-size model of the PBN-1 flying boat - NACA model 192. (Natl Advisory Committee for Aeronautics Rept L 567; Memo Rept L5C30) Apr 1945. 53 p. Price: Microfilm-$2.25 - Photostat-$6.00
Several modifications of a 1/8-size model of the PBN-1 airplane were tested in Langley tank No. 1 to determine their effect on the spray characteristics and on the take-off and landing stability. The modifications included changes in the bow (addition of spray strips) and increases in the depth of step and angle of afterbody keel. The spray over the bow at low speeds was reduced by the addition of spray strips and, to a lesser extent, by an increase in depth of step or angle of afterbody keel. The range of speeds over which spray entered the propellers was reduced by the addition of spray strips. An increase in depth of step, which increased the propeller clearance, also reduced this range of speeds. An increase in angle of afterbody keel had little effect on the propeller spray. The basic model skipped at all trims above 6° This skipping was eliminated by an increase in the depth of step from 3.8 to 7 percent beam. An increase in the angle of afterbody keel from 6.25° to 7.75° reduced the landing stability. The location of the main step was satisfactory for stable take-offs with neutral elevators at forward positions of the center of gravity and with -10° elevators (trailing edge up) at after positions of the center of gravity. An increase in the depth of step or angle of afterbody keel did not appreciably affect the forward limit for stable positions of the

center of gravity. With an elevator deflection of -10°, the after limit for stable positions of the center of gravity was moved aft when the depth of step was increased.

PB L 87241. WORLEY, LEE. Report on the German standardized airframe assembly fixtures. n. d. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
Notes on the German airframe assembly fixtures are presented in the belief that they contain material which will prove of value to our industry. Drawings are attached.

Instruments

PB L 81989. GRETHER, WALTER F. Discussion of pictorial versus symbolic aircraft instrument displays. (AAF AMC Eng Div Memo Rept TSEAA-694-8B). Aug 1947. 22 p. Price: Microfilm-$1.50 - Photostat-$3.00
In this report the problem of symbolic versus pictorial displays is discussed only with reference to instruments used in the airplane. It is believed that the information presented in this report, although centered around airborne displays, can be applied also to air traffic displays on the ground.

PB L 86450. HARRELL, H. H. and ROBERTS, L. F. Service test of the type F-2 automatic pilot. (Air Proving Ground, Eglin Field Fla. Project 4-46-4). Oct 1947. 73 p. Price: Microfilm-$2.75 - Photostat-$8.00
Tests to determine the functional and tactical suitability of the Type F-2 automatic pilot for air forces use, and to compare the F-2 automatic pilot with the E-4 automatic pilot. Photographs are attached.

PB L 87860. MAUCH. Askania three-gyro automatic pilot control. (AAF T-2 Translation 1064). Jan 1947. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
The new pilot control combines three gyro devices. It is designed to provide an electrical means for automatically measuring three magnitudes (turn, bank and pitch). The functioning of the instrument is based on the fundamentals found in Hierholzer's calculations which have been further developed and expressed in simple formulas. The instrument requires a minimum of space.

PB L 87699. SCHALLER, W. A. Aircraft instruments and automatic pilots. (AAF T-2 Tech Intelligence Review F-IR-86-RE). Aug 1946. 22 p. Price: Microfilm-$1.50-Photostat-$3.00
Materials discussed are manufacture and maintenance problems of Japanese aircraft instruments. Most Japanese aircraft instruments are copies of AAF equipment. Due to lack of proper materials and skilled workmanship, their instruments are very inferior.

PB L 87813. SCHERER. Partial report on the test of the Patin automatic direction-finding installation. (AAF T-2 Translation 1901). Jan 1948. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
Patin automatic pilot operates on voltage output of direction-finding receiver. Installation is based entirely on relay control. Amplification of voltage is unnecessary. Device is installed in airplane to test ground and flight characteristics and performance. Endurance test was run to furnish data regarding operational safety, length of life, and wear on components. Advantages are given of installation for radio-controlled navigation of airplanes.

PB L 85573. TOLEFSON, H. B. and PRATT, K. G. An analysis of the indications of the University of Chicago airborne turbulence indicator in gusty air. (Natl Advisory Committee for Aeronautics Rept L 723; Memo Rept L6D08) Aug 1946. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00
From current knowledge there is evidence that the maximum value and the frequency of occurrence of effective gust velocities constitute the most significant characteristics of atmospheric gustiness. On this basis the indications of the University of Chicago airborne turbulence indicator, M-3 modified, obtained during flights in rough air, are discussed as a measure of atmospheric gustiness in relation to simultaneous measurements by the NACA of accelerations experienced by the airplane and of effective gust velocities. The data used for this purpose were obtained from flights of a Beechcraft C-45F airplane through cumulus and altocumulus clouds during an investigation of atmospheric turbulence at Chanute Field, Ill. The results of the analysis reveal that the acceleration indications of the University of Chicago instrument have a definite tendency to be low, with a maximum error of 0.3g for acceleration increments up to about 1.0g. Variations in the airspeed of the airplane may introduce errors of 100 percent or more in the values of effective gust velocity evaluated from the indications of the instrument. The errors limit the usefulness of the instrument for the measurement of maximum effective gust velocity for use in single gust strength design criteria and also for meteorological studies of turbulence. For use in fatigue life studies, there is some possibility of estimating path ratio from the indications of the instrument for determining the total gust frequency.

PB L 88035. U. S. AIR PROVING GROUND, EGLIN FIELD, FLA. Service test of the variable time integrator attached to the A-10A sextant. Final report. (Project 4-47-23). Jan 1948. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00
The integrater was found to be simpler, more convenient, and more accurate than similar devices previously tested. It was recommended that the variable time integrator be made standard for Air Force use provided certain modifications are made. Photographs and tables attached.

PB L 88036. U. S. AIR PROVING GROUND, EGLIN FIELD, FLA. Service test of type E-6 automatic pilot. Final report. (Project 4-46-13). Dec 1947. 71 p. Price: Microfilm-$2.75 - Photostat-$8.00
The E-6 automatic pilot is the designation assigned to the equipment which was formerly designated improved C-1 automatic pilot; however, the test item was modified to include, among other features, redesigned servo units, a redesigned vertical flight gyro, and a rate gyro. The E-6 utilizes non-indicating gyros as a basis of automatic control as does the present C-1 autopilot, and is similar in basic principle to the latter autopilot although much simpler to set up and operate. It was recommended that the E-6 as tested not be considered suitable for Air Force use, and that a production model E-6 incorporating suggested modifications and improvements be service tested. Photographs and tables attached.

PB L 86023. U. S. ARMY AIR FORCES. MATERIEL COMMAND. ENGINEERING DIVISION. Design of instrument dials for maximum legibility; I. Development of methodology and some Preliminary Results. (AAF ANC Aero Medical Lab Memo Rept TSEAA-694-1L). Oct 1947. 40 p. Price: Microfilm-$1.75 - Photostat-$4.00

Instruments (contd)

The purpose of this report is to describe the development of experimental procedures for systematic experimentation upon the many variables affecting dial reading, and to report some preliminary results. Drawings, tables, and photographs are included.

PB L 88083. U. S. BUREAU OF AERONAUTICS. Indicators, directional-gyro, electric. (NAVAER Specification 88-1-1). Dec 1947. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00

Engines and Propellers

PB L 87345. BARTLETT, WALTER A., JR. and MARINO, ALFRED A. An investigation of the mutual interference effects of a tail-surface-stern propeller installation on a model simulating the Douglas XB-42 empennage. (Natl Advisory Committee for Aeronautics Rept L 625; Memo Rept L4K09). Nov 1944. 86 p. Price: Microfilm-$3.00 - Photostat-$9.00

The mutual interference effects of tail surfaces and a stern propeller were investigated on a model representative of the empennage and propeller installation of the XB-42 airplane. The tests were conducted primarily to determine the effect of tail-surface - propeller spacing upon the periodic tail-surface loading coincident with propeller blade passage. In the static-thrust condition, instantaneous pressure data were obtained at propeller blade angles of 20°, 30°, and 40° over a range of propeller rotational speeds and tail-surface-propeller spacings. The effect of blade angle, tail-surface-propeller spacing, angle of attack, and control-surface deflections on the instantaneous and average pressures on the tail surface and on propeller aerodynamic characteristics were obtained in both positive and negative dynamic thrust. The pressure impulses on the control surfaces due to propeller blade passage were found to increase with propeller rotational speed or blade angle, or with decreased tail-surface - propeller spacing in both static and positive dynamic thrust.

PB L 86991. BELLMAN, DONALD R. and others. Knock-limited power outputs from a CFR engine using internal coolants. II. Six aliphatic amines. (Natl Advisory Committee for Aeronautics Rept E-219; AC Rept E5H31). Oct 1945. 19 p. Price: Microfilm-$1.25 - Photostat-$2.00

An investigation was conducted to determine the knock-limited performance of AN-F-28, Amendment-2, fuel in a CFR engine when water solutions of the following aliphatic amines were added as internal coolants: monomethylamine, dimethylamine, ethylenediamine, diethylamine, triethylamine, and butylamine. All of the internal-coolant solutions consisted of 25 percent amine and 75 percent water except for monomethylamine and dimethylamine solutions, which had a slightly higher percentage of amine. The internal coolant-fuel ratio was 0.50 in most cases, but tests were run using water and water solutions of dimethylamine at a coolant-fuel ratio of 0.75. Comparison curves were run with no internal coolant and with water alone as an internal coolant. Experiments were conducted to determine the effect of increases in fuel flow and internal-coolant flow at constant air flow on the power output when the engine was operating at a high power level by means of the injection of dimethylamine-water solution. For fuel-air ratios between 0.055 and 0.095, the addition of the diethylamine, triethylamine, and butylamine solutions decreased the knock-limited power. A knock-limited indicated mean effective pressure of 102h pounds per square inch was obtained at a fuel-air ratio of 0.093 when using the dimethylamine-water solution at a coolant-fuel ratio of 0.75.

PB L 86454. BOELTER, L. M. K. and others. An investigation of aircraft heaters. XVIII: A design manual for exhaust gas and air heat exchangers. (Natl Advisory Committee for Aeronautics Rept W-95; AR Rept 5A06) Aug 1945. 150 p. Price: Microfilm-$4.50 - Photostat-$15.00

Heat exchangers for the transfer of heat from one fluid to another fluid at a lower temperature are basic elements of modern airplane installations. Examples of such exchangers are intercoolers, oilcoolers, cabin-air heaters, exhaust gas heat exchangers for wing anti-icing systems, and the heated wing itself. The basic elements for the design of oilcoolers and intercoolers are covered by the report entitled "Design, Selection, and Installation of Aircraft Heat Exchangers" by George P. Wood and Maurice J. Brevoort. The following report is concerned with the elements of design of cabin-air heaters, wing anti-icing heat exchangers, and other exchangers in which the hot fluid consists of air (or the products of combustion of air and a hydrocarbon fuel), and the cold fluid is air. This report, which summarizes a series of reports issued by the NACA under the title "An Investigation of Aircraft Heaters" (I to XXIII), is divided into four parts. The basic equations for the determination of the thermal resistances involved in heat exchanger design are presented in part I. Several examples of the application of these basic equations of part I to the prediction of the thermal performance of a number of heaters are presented in part II. Nonisothermal pressure drop is discussed in part III. However, isothermal pressure drop characteristics are not presented in detail since several readily available references cover this aspect of heater design. Also in part III the heat requirements of aircraft are discussed briefly; the equations used to correct heater performance to any altitude are presented; and the equations required to predict the performance of a ram-operated heater-and-duct system at any airplane speed and altitude are summarized. Part IV consists of an appendix in which the physical properties of air are given for a range of temperatures from -100° to 1600° F.

PB L 87806. CONWAY, ROBERT N. and EMMONS, M. ARNOLD, JR. An investigation of the Ranger V-770-8 engine installation for the Edo XOSE-1 airplane. I. Cooling. (Natl Advisory Committee for Aeronautics Rept L-561; Memo Rept L5L12). Oct 1945. 65 p. Price: Microfilm-$2.50 - Photostat-$7.00

An investigation of the cowling and cooling of the Ranger V-770-8 engine installation in the Edo XOSE-1 airplane has been conducted in the Langley propeller-research tunnel. The present report contains engine temperature data and cooling correlation analyses of the engine and oil cooler. Three types of baffles were installed on the engine in the course of the tests: the Ranger conventional and turbulent-flow baffles, and the NACA-designed diffuser baffles. Engine-cylinder cooling with either the conventional or turbulent-flow baffles is predicted (by the correlation method) to be adequate for military power with rich mixture, and cruise power with lean mixture, at the flight conditions selected for analysis. Oil cooling is predicted to be adequate at the selected conditions of military climb and maximum endurance cruise, and is shown to require a slightly larger flap exit area than was used in the test configuration for adequate cooling at military high speed. Cylinder temperatures were below specified limits, but excessive temperatures were measured at the magneto and other locations on or about the engine. The three baffle types were each of merit in cooling a different region on the cylinder. An optimum baffle design is thus indicated to combine the best features of the three tested.

PB L 87346. CORSON, BLAKE W., JR. and MASTROCOLA, NICHOLAS. Static characteristics of Curtiss propellers having different blade sections. (Natl Advisory Committee for Aeronautics Rept L-568). Aug 1941. 46 p. Price: Microfilm-$2.00 - Photostat-$5.00

Static tests were made on four full-scale two-bladed propellers differing only in blade sections, at blade angles from 0° to 20° at the three-quarters radius. Two of the same propellers were tested as three bladed propellers. The tests were made outdoors under conditions of low wind velocity. The data are analyzed on the basis of a static thrust figure of merit and by Driggs Simplified Propeller Calculations, which is a single-point method of reducing propeller data to airfoil data. Static propeller data are reduced to airfoil data for all of the propellers tested. These airfoil data for the two three bladed propellers have been reconverted to propeller efficiency as a function of advance ratio for the purpose of comparing the modified NACA 16-series blade sec-

tions with the Clark Y blade section. The propeller with Clark Y blade sections yields slightly higher efficiency in take-off and climb than the modified 16-series sections. The propeller with modified 16-series sections may yield efficiencies higher by 2 or 3 percent than a similar propeller with Clark Y sections at the high speeds now attainable by some airplanes. The double cambered Clark Y gives only slightly lower efficiency than the modified 16-series section for high speed and slightly higher efficiencies for take-off. A slight increase in the radii of the leading and trailing edges of the modified 16-series sections has little effect on the behavior of the sections.

PB L 86453. CORSON, BLAKE W., JR. and MASTROCOLA, NICHOLAS. Static characteristics of Hamilton Standard propellers having Clark Y and NACA 16-series blade sections. (Natl Advisory Committee for Aeronautics Rept L-529) Aug 1941. 27 p. Price: Microfilm-$1.50 - Photostat-$3.00

Static tests were made on two full-scale three-bladed propellers differing only in blade sections, at blade angles from 0° to 20° at the three-quarters radius. The tests were made out-doors under conditions of low wind velocity. The data are analyzed on the basis of a static thrust figure of merit, and by Briggs' Simplified Propeller Calculations, which is a single-point method of reducing propeller data to airfoil data. Static propeller data are reduced first to airfoil data, then reconverted to propeller efficiency as a function of advance ratio for the purpose of comparing the NACA 16-series blade section with the Clark Y blade section. A comparison of the efficiencies computed from static data indicates that a propeller having 16-series sections may give about three percent higher efficiency than a Clark Y propeller of similar blade form, when the blade sections operate at tip-speed ratios of about M = 0.9 or M = 1.0, at relatively high forward velocity. The propeller with Clark Y blade sections appears to be superior to that with the 16-series sections for take-off and climb.

PB L 85583. DINGELDEIN, RICHARD C. and SCHAEFER, RAYMOND F. High-speed photographs of a YR-4B production rotor blade for simulated flight conditions in the Langley full-scale tunnel. (Natl Advisory Committee for Aeronautics Rept L 631; Memo Rept L5C12g). Mar 1945. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00.

Recent tests of a Sikorsky YR-4B helicopter in the Langley full-scale tunnel included photographing a production rotor blade in simulated forward-flight conditions using Edgerton flash equipment. The blade was photographed at azimuth angles of 0°, 45°, 135°, 180°, 225°, and 315° for tip-speed ratios ranging from 0.12 to 0.23. The results clearly show fabric deformation in the form of sagging and bulging. The photographs also indicate a reversal in the bending curve near the blade tip that appears to result from the combined effects of losses of lift and high centrifugal force at this point.

PB L 87847. EDER, FRANZ. Theory of propeller de-icing. (AAF T-2 Translation 940). Mar 1947. 21 p. Price: Microfilm-$1.50 - Photostat-$3.00

The correct temperature for de-icing airscrews is calculated on the basis of the known heat exchange value for a flat plate and the known frictional temperatures of the laminary and turbulent flows of the boundary layer.

PB L 88007. GILMAN, JEAN, JR. Static-thrust and torque characteristics of single and dual rotating tractor propellers. (Natl Advisory Committee for Aeronautics Rept L-750). Jun 1944. 52 p. Price: Microfilm-$2.25 - Photostat-$6.00

A program of outdoor tests was carried out to determine the static-thrust and torque characteristics of single- and dual-rotating propellers for use in air-craft propeller design and in take-off performance estimation. The propellers used for the tests were 10 feet in diameter and were made up of blades of Hamilton Standard design, drawing numbers 3155-6 and 3155-6-1.5. The characteristics were investigated over a considerable range of solidity for both single- and dual-rotating propellers. Blade-angle settings ranged from 10° to 40° in 5° increments. The propeller characteristics are presented as functions of the blade-angle setting at the three-quarters radius and, for some comparisons, as a function of the power coefficient. Design charts showing the variation of thrust with total activity factor are included.

PB L 86281. GILMAN, JEAN JR. Wind-tunnel tests and analysis of three 10-foot-diameter three-blade tractor propellers differing in pitch distribution. (Natl Advisory Committee for Aeronautics Rept L 712; AN Rept L6E22). Aug 1946. 113 p. Price: Microfilm-$3.75 - Photostat-$12.00

An investigation was conducted at low Mach numbers to determine the effect of variations in pitch distribution on propeller efficiency. Three 10-foot-diameter three-blade tractor propellers mounted on a streamline body were tested for a blade-angle range from 15° to 65°. In addition to the usual procedure of determining propeller thrust and power coefficients by force-balance measurements, surveys were made of the total pressure in the propeller wake to determine the thrust loadings. The over-all propeller characteristics as well as the thrust and torque loadings were also determined by an analytical method. The section thrust and torque coefficients are presented for seven standard radii in a form that enables rapid determination of the thrust and torque loadings of the three propellers at operating conditions within the limits of the data obtained. Charts are presented that show the variation of power coefficient with blade-angle setting and advance-diameter ratio and that include lines of constant efficiency. Other charts show the variation of thrust coefficient with advance-diameter ratio at both constant blade-angle setting and constant power coefficient. A comparison of the variation of thrust coefficient with advance-diameter ratio at several constant values of power coefficient is made to show the relative efficiency of the three propellers for a large range of operating conditions. The efficiencies are compared at several simulated flight conditions ranging from take-off to high speed.

PB L 86068. GOETT, HARRY J. and DELANY, NOEL K. Effect of tilt of the propeller axis on the longitudinal-stability characteristics of single-engine airplanes. (Natl Advisory Committee for Aeronautics Rept A-59; AC Rept 4E29). Nov 1944. 71 p. Price: Microfilm-$2.75 - Photostat-$8.00

The results of tests of a model of a single-engine airplane with two different tilts of the propeller axis are reported herein. The results indicate that on a typical design a 5° downward tilt of the propeller axis will considerably reduce the destabilizing effects of power. This reduction is equivalent to as much as a 0.05 mean aerodynamic chord favorable shift of the neutral point for 2100-horsepower operation (at a C_L of 0.8). For 3450-horsepower operation the increase in the stability is equivalent to a 0.10 mean aerodynamic chord shift in the stick-fixed neutral point at a C_L of 0.8. The improvement in handling characteristics (elevator angle and stick force vs velocity, and stick force vs normal acceleration) resulting from these effects is evaluated. It is shown that, by use of the tilted propeller, the stick force in accelerated maneuvers can be reduced at no sacrifice of power-on stability. A comparison of the experimental results with those computed by use of existing theory is included. It is shown that the results can be predicted with an accuracy acceptable for preliminary design purposes, particularly at the higher powers where the effects are of significant magnitude.

PB L 86062. GRAY, W. H. Wind-tunnel tests of two Hamilton Standard propellers embodying Clark Y and NACA 16-series blade sections. (Natl Advisory Committee for Aeronautics Rept L-530). Aug 1941. 30 p. Price: Microfilm-$1.50-Photostat-$3.00

Tests of two 10-foot Hamilton Standard propellers were made in the propeller-research tunnel for the Bureau of Aeronautics, Navy Department, to determine the relative merits of the Clark Y and NACA 16-series sections and to determine the negative thrust available at negative angles. Thr propellers were identical as to diameter, acitvity factor, thickness ratio and pitch distribution. Tests covered a range of blade angles from -25° to 65°, and were all made at tip speeds below 280 feet per second. The results indicated comparatively little difference between propellers at peak efficiency for the low Mach numbers experienced in the tunnel tests. The NACA 16-series sections displayed earlier stalling characteristics than the Clark Y section.

PB L 87842. HILPERT and WOEHLER. Lubricant cooler investigations under high altitude conditions. Intermediary report II. (AAF T-2 Translation 915; ZWB UM 2087). Apr 1947. 74 p. Price: Microfilm-$2.75 - Photostat-$8.00

The test arrangement enumerates various improvements resulting from a previous test. The test stand used for cooler Fo 866 is adjusted to the following altitudes: 0, 5, 6, 11, and 14 km. Cooling performance per hour is given for various altitudes relative to oil pressure and variations of temperature for oil and air. Thermal test points of the air space behind the cooler are discussed.

PB L 85584. JOHNSTON, J. FORD and CAVALLO, STEFAN A. Flight investigation of the performance and cooling characteristics of an NACA C cowling on the XP-42 airplane. (Natl Advisory Committee for Aeronautics Rept L 612) Nov 1942. 41 p. Price: Microfilm-$2.00 - Photostat-$5.00

Results are presented of high-speed and climb tests of an NACA C cowling on the XP-42 airplane. These tests were made for comparison with tests of NACA type D cowlings on the same airplane. The top speed corresponding to the engine military power (1000 hp at 14,500 ft) was 336 miles per hour; the addition of Curtiss narrow-chord propeller cuffs increased this speed by 1 mile per hour; and the addition of cuffs and a 24-inch-diameter spinner increased the speed by 3 miles per hour. Cooling-air-pressure recovery on the front of the engine in climb, at 140 miles per hour indicated airspeed, averaged 58 percent of airplane impact pressure with the spinner and cuffs, 68 percent with cuffs only, and 67 percent without spinner or cuffs. Corresponding pressure recoveries in full-throttle level flight were 69, 74, and 74 percent. The ground cooling with spinner and cuffs was satisfactory. With cuffs only, spark-plug elbow temperatures exceeded their limit by 29° F after cut-off in the ground run. Without cuffs or spinner, they exceeded their limit by 65° F, and the oil-in temperature also exceeded its limit.

PB L 85923. KANTROWITZ, ARTHUR and ERWIN, JOHN R. Cascade investigation of buckets for a modern aircraft turbosupercharger. (Natl Advisory Committee for Aeronautics Rept L-765; AC Rept L4J25). Nov 1944. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00

A cascade investigation in two-dimensional flow was carried out in the Langley 5-inch cascade tunnel and the Langley 1-inch turbine-element testing apparatus to obtain a satisfactory bucket design for use in a modern aircraft turbosupercharger. This investigation included tests of the original bucket sections of conventional design and tests of bucket sections designed by the NACA. Velocity-distribution and turning-angle data were obtained in the Langley 5-inch cascade tunnel for the operating range of velocity ratio and are presented in graphical form for all of the sections tested with the exception of the original bucket tip section, over which the flow separated to such an extent that turning-angle data could not be obtained. Schlieren photographs of high-speed air flow about all the buckets tested are presented with measurements of the maximum Mach number attainable ahead of the cascade. The NACA turbine bucket sections showed promise of significant improvements. Rotating-machine tests are needed to make the improvements measurable directly in terms of lowered back pressure on the engine or increased turbosupercharger performance.

PB L 88005. KATZOFF, S. High-altitude cooling. V - Cowling and ducting. (Natl Advisory Committee for Aeronautics Rept L-775; AR Rept L4J11d). Sep 1944. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00

A discussion is given of the variations with altitude of the air-volume requirements of the carburetor and the various cooling elements, and the effects of these variations on duct design for high-altitude airplanes are shown. The fundamental principles in the design of efficient duct inlets, expanding passages, and outlets are presented, with special reference to the avoidance of flow separation or of compressibility effects; and data are given to show the magnitude of the effects discussed and to provide design criterions.

PB L 87564. KINGHORN, GEORGE F. Effect of inlet-air velocity distribution on the metering pressure of an injection-type aircraft carburetor. (Natl Advisory Committee for Aeronautics Rept L-768). May 1942. 35 p. Price: Microfilm-$1.75 - Photostat-$4.00

Tests have been made of a three-barrel pressure carburetor to determine the effect of nonuniformity of the air flow in the intake duct upon the metering of the carburetor. Measurements were made in the air side of the metering system and in the carburetor barrels for a large variety of flow distributions. For the most nonuniform air-flow distributions the metering pressure was found to be increased about 11 percent, which is equivalent to a 5-percent enriching of the mixture. The flow behind a square unvaned elbow was found to be more nonuniform than that behind a rounded unvaned elbow and led to an increase in the metering pressure several times as large as the increase due to the rounded elbow. Certain features of the altitude compensation were also investigated. The results of these tests indicated that the altitude compensation was satisfactory over the limited range tested.

PB L 86283. KINGHORN, GEORGE F. and MUELLER, WILLIAM A. Investigation of methods of reducing the temperature variation among cylinders on air-cooled aircraft engines. (Natl Advisory Committee for Aeronautics Rept L 640) Jul 1943. 46 p. Price: Microfilm-$2.00 - Photostat-$5.00

Tests have been made to determine methods for reducing the temperatures of the hot cylinders on air-cooled aircraft engines. A Pratt & Whitney R-1830-43, 14-cylinder engine was used for the tests. Reductions of 30° F to 35° F in the cylinder-head and barrel temperatures were obtained by the use of ducts directing cooling air upon the rear of the cylinders. Increasing the cylinder fin area by welding additional lengths of metal to the existing fins resulted in temperature reductions of about 26° F. Baffle modifications which included enlarging the inlet gaps, extending the baffles farther to the rear of the cylinder, adding a diffuser at the baffle outlet, and providing separate ducts to the hot parts of the cylinder, resulted in head-temperature reductions of as much as 50° F. In addition, large reductions in the temperatures of individual cylinders were obtained by injecting additional fuel ahead of the cylinder intake ports. It appears that the pressure drop required to cool many air-cooled engines may be considerably reduced by decreasing the temperatures of the individual hot cylinders through the use of methods similar to those tested.

PB L 85569. MARTINELLI, R. C. and others. An investigation of aircraft heaters. III. Measured and predicted performance of double tube heat exchangers. (Natl Advisory Committee for Aeronautics Rept W-78). Oct 1942. 45 p. Price: Microfilm-$2.00 - Photostat-$5.00

Two double tube cylindrical heat exchangers, in which hot exhaust gases pass through the annular space and ventilating air passes through the center tube, have been tested to determine heat transfer performance and pressure drop. One of the exchangers was equipped with a smooth cylindrical air pipe, while the other utilized a dimpled type intensifier tube. The test was performed in order to: (1) establish a simple, accurate method of predicting the performance of the double tube heat exchanger, since this design is a basic element of practically all gas-air heaters; (2) compare the performance of the straight and dimpled tubes; and (3) determine the pressure drop across the units. Two diagrams, 4 tables, 6 graphs, and 6 drawings are included.

PB L 87804. NIELSEN, JACK N. High-altitude cooling. III. Radiators. (Natl Advisory Committee for Aeronautics Rept L-773; AR Rept L4111b). Sep 1944. 38 p. Price: Microfilm-$1.75 - Photostat-$4.00
A detailed analysis has been made to take account of the high cooling-air velocity occurring in high-altitude radiators. Methods are developed for determining the heat-transfer rate, the pressure drop, and the drag power. Some effects of Mach number are shown. Radiator performance charts based on the analysis are presented for a wide range of the design variables. The application of the charts is shown by an example. The performance charts show that the heat-transfer rate for a given total-pressure loss is not greatly affected by the high airplane velocities but that the necessary total-pressure loss and the resulting drag are both greatly increased at high altitudes.

PB L 87845. SCHUH, H. Theory of the oil coolers; Heat transfer and pressure drop in the slot at variable viscosity. (AAF T-2 Translation 931; ZWB UM 6602). Apr 1947. 28 p. Price: Microfilm-$1.50 - Photostat-$3.00
In case of aircraft engines, difficulties occur in the operation of oil coolers, which can be laid to the high viscosity of the oils used and their very strong dependence on the temperature. Heat transfer and pressure drop is calculated for oil coolers for which it is assumed that oil flow exists in the slot. From these data essential facts may be obtained for the design of a good oil cooler.

PB L 87562. SILVERSTEIN, ABE and WILSON, HERBERT A., JR. Cooling in cruising flight with low fuel-air ratios. (Natl Advisory Committee for Aeronautics Rept L-570). Jun 1942. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00
Single-cylinder dynamometer tests (references 1 and 2) have shown that engine cooling and fuel economy at cruising powers can be improved by operation at fuel-air ratios leaner than those provided by the usual automatic lean carburetor settings. Inasmuch as improvements of the cooling and the fuel economy are attractive means for increasing the range, the possibilities of realising similar gains with a conventional multicylinder engine installation have been investigated by tests of a Pratt & Whitney R-1830-43 engine mounted in a R-2800 nacelle in the full-scale wind tunnel. The engine temperatures, the baffle pressure drops, and the fuel consumptions were measured for engine operation at about 0.6 of rated power for values of the fuel-air ratio from 0.056 to 0.090. The lower of these fuel-air ratio values is only slightly above the leanest mixture for smooth engine operation while the upper value is rich. In automatic lean the carburetor that was tested provided a fuel-air ratio of about 0.072 at cruising power. The power was limited to about 0.6 of the normal engine rating to hold the brake mean effective pressure below the detonation limit for the 100 octane fuel used. With a better fuel the tests could have been extended to higher powers. A photograph, a drawing and four graphs are included.

PB L 87573. SILVERSTEIN, ABE. High-altitude cooling. I. Means of the cooling problem. (Natl Advisory Committee for Aeronautics Rept L-771; AR Rept L4I11) Sep 1944. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00
This paper is the first of a series of six papers that discusses the cooling of aircraft-engine installations with special reference to the difficulties of cooling at high altitudes. In the present paper the properties of NACA standard air and Army summer air, with corresponding stagnation conditions for a range of flight speed, are summarized in tables and figures; and the general effects of the density and temperature variations with altitude are discussed with regard to required mass flow and volume flow of cooling air, required cooling pressure, available cooling pressure, and cooling power. The general relations between the necessary heat transfer and the corresponding required flow of cooling air are summarized, together with their effects on the required cooling pressures; and it is shown that the required cooling pressure increases whereas the available cooling pressure decreases at high altitudes.

* PB L 85596. STERNE, L. H. G. and others. Propeller development at V.D.M., Frankfurt a.M. (BIOS Final Rept 221, Item 26). Aug 1945. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
The V.D.M. works at Heddernheim and Hasselborn and the C.M. Works at Heddernheim were visited in order to obtain information about the V.D.M. propeller developed during the war. Reports presented on these visits are largely negative. Photographs and sketches are included.

PB L 87577. TETERVIN, NEAL. Airfoil section data from tests of 10 practical-construction sections of helicopter rotor blades submitted by the Sikorsky Aircraft division, United Aircraft Corporation. (Natl Advisory Committee for Aeronautics Rept L-643). Sep 1944. 138 p. Price: Microfilm-$4.25 - Photostat-$14.00
At the request of the Army Air Forces, Materiel Command, 10 practical-construction models of sections of helicopter rotor blades built by the Sikorsky Aircraft Division, United Aircraft Corporation, were tested in the NACA two-dimensional low-turbulence pressure tunnel at atmospheric pressure. Lift, drag, and pitching-moment characteristics of blades representing the present method of construction of the YR-4A helicopter were determined. Similar data were obtained for other models representing the YR-4A, XR-6, and XR-5 helicopters to determine the effect of an abrasion strip at the leading edge, of improving the surface fairness and smoothness near the leading edge, of halving the rib spacing, of making the blades entirely of plywood, of using a combination plywood and fabric construction, and of using a thinner airfoil section. The effects of various model internal pressures on the characteristics of the fabric-covered models were determined. Internal pressures corresponding to various tipvent positions were measured on one of the two tip sections. The spanwise variation of section drag was also obtained for the tip sections. The tests were made over a range of Reynolds numbers from 0.74×10^6 to 3.46×10^6 and a corresponding range of Mach numbers from 0.130 to 0.376.

PB L 86993. TRAUTWEIN, ELMER E. and GABRIEL, DAVID S. The effect of two inlet-duct designs on turbine efficiency. (Natl Advisory Committee for Aeronautics Rept E-209; CB E5K21). Dec 1945. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00
Tests of supercharger systems have shown that impeller efficiency is considerably affected by the inlet-duct design. A surprisingly large increase in turbine efficiency resulted when the inlet-duct system for a single-stage impulse turbine with a 11.0-inch pitch-line diameter wheel was slightly altered. In this report efficiency curves are shown for tests with the two different entrance sections over a range of turbine-pressure ratios from 1.2 to 5.4. In addition, the results of flow surveys of the nozzle box using each of the entrance sections are shown. Two sectional drawings and graphs are included.

PB L 87858. U. S. ARMY AIR FORCES. AIR MATERIEL COMMAND. Preliminary description of Patin directional gyro control unit PKZ 13. (Translation 1054). Feb 1947. 25 p. Price: Microfilm-$1.50 - Photostat-$3.00
The description of an improved automatic pilot device, its operation and installation instructions. By installing a central course control, the remote compass installation is greatly improved. It is an electrically working gyro instrument which registers the compass course without vibration and eliminates errors commonly known to show in all magnetic compasses.

PB L 88006. WILLIAMS, DAVID T. High-altitude cooling - II. Air-cooled engines. (Natl Advisory Committee for Aeronautics Rept L-772; AR Rept L4I11a). Sep 1944. 36 p. Price: Microfilm-$1.75 - Photostat-$4.00

The heat-transfer theory for air-cooled engines is summarized and an analysis of the cooling pressure drop is made for the case in which the pressure drop is an appreciable fraction of the absolute pressure. A chart is given for the simple determination of the cooling pressure drop predicted on the basis of the usual type of sea-level cooling-correlation tests. The method is applied to predict the variation with altitude of the cooling pressure drop required by a typical engine.

PB L 85555. WOOD, GEORGE P. and BRIMLEY, D. E. A study of the effect of aftercooling on the power and the weight of a 2000-horsepower air-cooled engine installation. (Natl Advisory Committee for Aeronautics Rept L-705) Sep 1944. 27 p. Price: Microfilm-$1.50 - Photostat-$3.00
A study is made of the effect of aftercooling on the brake horsepower, the weight, and the weight-power ratio of a power plant consisting of a 2000-horsepower air-cooled engine, an intercooler, and two stages of supercharging. The study is for full-throttle operation at 30,000 feet. The dependence of brake horsepower on supercharger performance is stressed. Three cases are considered: (1) inadequate supercharging, (2) supercharging to constant manifold pressure, and (3) supercharging to detonation-limited manifold pressure.

Operations

* PB L 86848. FISHER, J. K. Aero engine exhaust flame suppression. (BIOS Final Rept 1533, Item 26). Feb 1942. 21 p. Price: Microfilm-$1.50 - Photostat-$3.00
The following plants were visited: the research establishments at Volkenrode and Sonthofen; Daimler Benz - Unterturkheim; J. Eberspächer-Esslingen; Dornier Friedrichshafen; D.V.L. Sonthofen; and B.M.W. Oberwissenfeld. Appendix I contains a list of translations on exhaust silencing; Appendix II, text on Dornier patent application on flame suppression; and Appendix III, text of D.V.L. report on thrust of the flame damper in flight.

PB L 86435. FORBES, T. W. Auditory signals for instrument flying. May 1946. 4 p. Price: Microfilm-$1.00 Photostat-$1.00
The purposes of the study were to determine (1) what types of auditory signals could be followed with greatest ease, (2) with what accuracy such signals could be utilized, and (3) how many simultaneous auditory signals could be followed successfully. The results indicate that, if the signals are properly designed, as many as four auditory indications can be followed without interfering with radio and interphone communication when occasion demands. Reprinted from Journal of the Aeronautical Sciences, v. 13, No. 5.

PB L 85334. U. S. ARMY AIR FORCES. Bombardiers' information file. May 1945. 247 p. Price: Microfilm-$7.00 - Photostat-$25.00
The publication contains sections on fundamentals of bombing, computers, instrument calibration and navigation, C-1 autopilot, M-series bombsight, armament, combat bombing, and emergencies and precautions.

PB L 85332. U. S. ARMY AIR FORCES. Pilots' information file (Bound with AAF Regulation 62-15; 62-15A). May 1944. 251 p. Price: Microfilm-$7.00 - Photostat-$26.00
The manual contains these sections on safe flying and operational efficiency: (1) General; (2) Flight; (3) Weather flying; (4) Man goes aloft; (5) Power plant; (6) The airplane; (7) Navigation aids; and (8) Emergency.

PB L 85332-S. U. S. ARMY AIR FORCES. Pilots' information file, revision 15. (Supplement to PB L 85332) Jan 1945. 30 p. Price: Microfilm-$1.50 - Photostat-$3.00
Contains loose-leaf revision sheets to basic manual (PB L 85332).

PB L 85332-S2. U. S. ARMY AIR FORCES. Pilots' information file, revision 16. (Supplement 2 to PB L 85332) Feb 1945. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00

PB L 85332-S3. U. S. ARMY AIR FORCES. Pilots' information file, revision 17. (Supplement 3 to PB L 85332) Apr 1945. 32 p. Price: Microfilm-$1.75 - Photostat-$4.00

PB L 85332-S4. U. S. ARMY AIR FORCES. Pilots' information file, revision 18. (Supplement 4 to PB L 85332) May 1945. 52 p. Price: Microfilm-$2.25 - Photostat-$6.00

PB L 85332-S5. U. S. ARMY AIR FORCES. Pilots' information file, Table of contents, dated Aug. 1945, and revised sheets. (Supplement 5, to PB L 85332) Aug 1945. 60 p. Price: Microfilm-$2.25 - Photostat-$6.00

PB L 86462. U. S. SIGNAL CORPS. ENGINEERING LABORATORIES, BELMAR, N. J. Recording and plotting in AA defense. (SIGIS-60). n. d. 30 p. Price: Microfilm-$1.50 - Photostat-$3.00
The AA recording and plotting are auxiliary means which can not be replaced in the instruction of the personnel in the use of AA defense devices and weapons. The important plotting of the trajectory and its evaluation is discussed in detail. The main recording and evaluation devices are discussed, with respect to their purpose and performance.

PB L 86729. WATKINS, CHARLES E. Paths of target-seeking missiles in two dimensions. (Natl Advisory Committee for Aeronautics Rept L 735; AC Rept L6B06). Jul 1946. 63 p. Price: Microfilm-$2.50 - Photostat-$7.00
The purpose of the present paper is to investigate some possible methods of using a target seeker and to derive corresponding pursuit paths. A comparison is made of pursuit paths obtained under similar conditions for different methods of using a target seeker. The effect on the nature of the paths of the important factors of relative speeds of the missile and target and the relative locations and directions of flight of the missile and target at the beginning of the pursuit are discussed in detail.

Maintenance and Repair

PB L 80771. BRANDEBERRY, FRANK E., JR. Service test of dolly assembly, propeller, type C-1C. Final report. (Air Proving Ground, Eglin Field Fla. Project 3-46-25). Mar 1947. 27 p. Price: Microfilm-$1.00 - Photostat-$2.00
The object of the test was to determine the functional and tactical suitability of the dolly assembly, propeller, C-1C, for transporting two aircraft propellers of diameters up to 19 feet, weighing 1,000 pounds each. The program for the test and conclusions are given. Eighteen photographs are enclosed.

PB L 87827. GREEN, H. H. Supply and maintenance policies and procedures of the Japanese air forces. (AAF T-2 Air Tech Intelligence Review Rept 121). Nov 1946. 58 p. Price: Microfilm-$2.25 - Photostat-$6.00
This report presents the findings as to organizations, practices, and policies of the supply and maintenance organization of the Japanese Air Force. The information was collected from three sources: 1) A study of intelligence memorandums published by Far East Air Forces and United States Strategic Bombing Survey; 2) Interrogation of officers of the Japanese Army Air Force; and 3) Translation of Japanese documents.

Training and Training Devices

PB L 86025. CROOK, MASON N. Further studies of the effect of vibrations and other factors on legibility of numerals. (AAF AMC Aero Medical Lab Memo TSEAA Rept 694-1K). Oct 1947. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
The three experiments reported show: (1) clear evidence of the effect of vibration frequency on legibility and of interaction between frequency and other stimulus variables; (2) some indication, not statistically established, of an effect of circular versus linear vibration and corresponding interaction with other variables; (3) no indication of a differential effect of black on white versus white on black under the conditions studied. Tufts College.

PB L 81991. GRETHER, WALTER F. The evaluation of a psycho-motor task for use in the study of warning signals. (AAF AMC Eng Div Memo Rept TSEAA-694-9c). Sep 1947. 24 p. Price: Microfilm-$1.50 - Photostat-$3.00
This experiment was carried out to evaluate the effects of practice, pilot experience, and mental set upon the scores made on this test. Department of Psychology, University of Maryland.

PB L 86274. LOUCKS, ROGER B. An azimuth trainer for evaluating the interpretability of directional indicating flight instruments. (AAF AMC Eng Div Memo Rept TSEAA-694-16). Oct 1947. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00
The critical features of an azimuth ground trainer, which will insure stable and dependable operation are described. Photographs included.

PB L 86024. MARTIN, ERNEST E. Proposed program on anti-G suit indoctrination in the Air Forces. (AAF AMC Aero Medical Lab Memo Rept TSEAA-689-2). Sep 1947. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00
The USAF anti-G equipment, consisting of the Type G-3A pilot's pneumatic anti-G suit, the M-2 pressure regulating valve for reciprocating engine type aircraft, and the M-4 pressure regulating valve for jet-propelled aircraft is now standard equipment for all fighter aircraft with the exception of the P-61, P-63, and P-39 type aircraft. An outline of an indoctrination course in the use of this equipment is presented in this report.

PB L 85764. WILLIAMS, A. C., JR. and others. Preliminary experimental investigations of "tension" as a determinant of performance in flight training. Jan 1946. 44 p. Price: Microfilm-$2.00 - Photostat-$5.00
The outcome as presented is a summary report rather than a detailed account of the minute steps by which the research was accomplished. It seeks to lay a background for later research, rather than to document in detail findings which are at best suggestive and indeterminate. The report is written with the conviction that the definition of "tension" which emerges at the end is far more important than the demonstration that certain components of "tension" may or may not be covariable with other elements in the flight training situation. University of Maryland, College Park, Maryland.

Airports and Airways

* PB L 81643. HAUTEVILLE, TANKRED VON. Modern air traffic control. (FIAT Final Rept 1204). Jun 1947. 35 p. Price: Mimeo-$1.00
This report deals with the application to civil use of methods of air traffic control and communication developed during the war for military purposes. A very good description is given of how present day equipment may be utilized to increase the safety and speed of air traffic. The text of this report is in German.

PB L 86048. U. S. AERONAUTICAL BOARD. Air Force - Navy - Civil uniform requirements for the numbering and marking of airfield runways and taxiways. (Army-Navy Civil Rept R-7). Nov 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81999. U. S. ARMY. CORPS OF ENGINEERS. NEW ENGLAND DIVISION. Report on frost investigation, 1944-1945. Apr 1947. 169 p. (Available from New England Div., Corps of Engineers, War Dept., Boston, Mass., $3.00)
The purpose of this report is to unify and summarize the results of observations and tests made at various airfields in the United States and to present design and evaluation criteria resulting from a study of the accumulated data on airfield pavements subjected to frost action. The report presents a summary of the studies, the observations and tests made, and the conclusions based upon these data including Part XII, Chapter 4, Ad. Interim Engineering Manual. The work presented herein includes the data obtained in the investigation conducted in 1944 and 1945. The results of the investigation made at Dow Field 1943-1944 for the Pavement Evaluation Program and reported in "Report on Frost Investigations and Pavement Behavior Tests, Dow Field, Bangor, Maine," dated January 1946, are summarized with the data obtained for this investigation. A number of charts, graphs, tables and bibliography are included.

Aerodynamics

PB L 87567. ABBOTT, I. H. Lift and drag characteristics of a low-drag airfoil with slotted flap submitted by Curtiss-Wright Corporation. (Natl Advisory Committee for Aeronautics Rept L-703). Dec 1941. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00
A 24-inch cord wooden model equipped with slotted flap was tested in the Langley two-dimensional tunnel. The tests described in this report were limited to measurements of lift and drag at various flap deflections. Most of the data were obtained at a Reynolds number of about 6,000,000. Drag coefficients were obtained by the wake-survey method. Lift coefficients were obtained by means of an integrating lift manometer which integrated the lift reaction on the floor and ceiling of the wind-tunnel test section. Two graphs are included.

PB L 87572. ABBOTT, I. H. Pressure-distribution measurements of a low-drag airfoil with slotted flap submitted by Curtiss-Wright Corporation. (Natl Advisory Committee for Aeronautics Rept L-676). Dec 1941. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00
The tests were made in the Langley two-dimensional tunnel at a Reynolds number of about 5,600,000. The model represented a wing section of the P-60A airplane. The model was equipped with a 0.25c slotted flap with the lip on the upper airfoil surface at approximately 90 percent of the airfoil chord. The model was equipped with pressure-distribution orifices. One table and five graphs are included.

PB L 86060. ABBOTT, IRA H. Pressure-distribution measurements of a model of a Davis wing section with Fowler flap submitted by Consolidated Aircraft Corporation. (Natl Advisory Committee for Aeronautics Rept L 678). Jan 1942. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00
The tests were made in the Langley two-dimensional tunnel at a Reynolds number of about 6,000,000. Pressure-distribution diagrams for several angles of attack, and flap deflections of 0°, 20°, and 40° are presented. Pressures are plotted directly as obtained from the manometer in terms of ½-inch units of carbon tetrachloride. The abscissa is the measured projection on the chord line of the pressure orifices. The values of the corrected dynamic pressure q and the impact pressure level in terms of the same units are given on each figure. The static pressure level is obtained by adding the value of q to the impact pressure level.

PB L 86019. ALLEN, H. JULIAN and VINCENTI, WALTER G. Wall interference in a two-dimensional-flow wind tunnel, with consideration of the effect of compressibility. (Natl Advisory Committee for Aeronautics Rept A-63; AR Rept 4K03) Dec 1944. 96 p. Price: Microfilm-$3.25 - Photostat-$10.00
Theoretical tunnel-wall corrections are derived for an airfoil of finite thickness and camber in a two-dimensional-flow wind tunnel. The theory takes account of the effects of the wake of the airfoil and of the compressibility of the fluid, and is based upon the assumption that the chord of the airfoil is small in comparison with the height of the tunnel. Consideration is given to the phenomenon of choking at high speeds and its relation to the tunnel-wall corrections. The theoretical results are compared with the small amount of low-speed experimental data available and the agreement is seen to be satisfactory, even for relatively large values of the chord-height ratio.

PB L 86053. AMES, MILTON B., JR. and HOGGARD, H. PAGE., JR. Wind-tunnel investigation of a section of the horizontal tail surface for the Bell XP-63 airplane. (Natl Advisory Committee for the Aeronautics Rept L-573). Aug 1941. 28 p. Price: Microfilm-$1.50 - Photostat-$3.00
This report covers tests made to determine the aerodynamic section characteristics of a modified low-drag airfoil with a 0.26c flap having 0.305c overhang and a 0.40c tab. The model was tested with several elevator nose shapes and with a gap of 0.001c at the elevator nose and also with the gap closed. A table, sketches, and seventeen graphs are included.

PB L 87801. ANDERSON, JOSEPH L. Tests of NACA 65 (216)-420 and 66 (218)-420 airfoils at high speeds. (Natl Advisory Committee for Aeronautics Rept A 57) Apr 1944. 65 p. Price: Microfilm-$2.50 - Photostat-$7.00
Wind-tunnel tests of NACA 65 (216)-420, a = 1.0, and 66(218)-420, a=1.0, airfoils at speeds up to and slightly above the critical are described. The test Reynolds numbers extended from 4,000,000 to 17,000,000 for the 65-series airfoil and from 4,000,000 to 28,500,000 for the 66-series. Section coefficients of lift, drag, and pitching-moment and extensive pressure-distribution data are presented. The critical speed for these airfoils at their design lift coefficient of 0.4 is shown to be about 460 miles per hour at sea level and about 435 miles per hour at 25,000 feet altitude. The 66(218)-420 airfoil was found to be extremely sensitive to surface imperfections. Throughout the test range the 65-series airfoil had no more and even less drag than the 66-series airfoil, and the low-drag characteristics extended over a greater range of lift coefficients.

PB L 86210. ASHWORTH, C. DIXON. Pressure-distribution measurements on various surfaces of a 0.2375-scale model of the Douglas XA-26 airplane in the 19-foot pressure tunnel. (Natl Advisory Committee for Aeronautics Rept L 553) Oct 1943. 137 p. Price: Microfilm-$4.25 - Photostat-$14.00
Pressure-distribution measurements on a 0.2375-scale model of the Douglas XA-26 airplane were conducted in the NACA 19-foot pressure tunnel. The measurements were made on the spinner-cowl-nacelle assembly and the fuselage for angles of yaw from -10° to 10° and at angles of attack from -8° to 8°. Pressures were also measured on the main-wheel door, nose-wheel door, and bomb-bay door at door angles from closed to full open through various ranges of angle of yaw and angle of attack. These tests were made at an airspeed of approximately 95 miles per hour with the air in the tunnel compressed to 35 pounds per square inch absolute, corresponding to a Reynolds number and Mach number of approximately 3,900,000 and 0.12, respectively. The results of the pressure measurements on the doors are presented as loads and hinge moments, whereas the measurements obtained on the nacelle and fuselage are shown as pressures on isometric diagrams. The latter method of presenting data was used to eliminate tedious tables. Tests of the model indicate that no critical pressures should be encountered in the high-speed level-flight condition of the airplane at 17,000 feet unless the spinner is removed; removing the spinner introduces critical pressures at 265 miles per hour. The nose-wheel door over most of the range tested will tend to close while the main-wheel and bomb-bay doors tend to open due to the aerodynamic loads.

PB L 86066. BAALS, DONALD D. and others. The development and application of high-critical-speed nose inlets. (Natl Advisory Committee for Aeronautics Rept L-729; AC Rept L5F30a) Jul 1945. 133 p. Price: Microfilm-$4.25 - Photostat-$14.00
An investigation was undertaken in the Langley 8-foot high-speed tunnel to establish the effects of nose-inlet proportions on critical Mach number and to develop a rational method for the design of high-critical-speed nose inlets to meet desired requirements. The nondimensional ordinates of the B nose inlet, which were developed in a previous investigation to be optimum from the standpoint of critical speed, were extended and modified slightly to improve the fairing. These ordinates, now designated the NACA 1-series, were then applied to a group of nose inlets involving a systematic variation of proportions. Wind-tunnel tests of these nose inlets were made through wide ranges of inlet-velocity ratio and angle of attack at Mach numbers of 0.3 and 0.4. Tests of representative nose inlets were carried to high speed (a maximum Mach number of 0.7). Pressure distributions and critical Mach number characteristics are presented for each of the nose inlets tested. The results of these tests show that the length ratio (ratio of length to maximum diameter) of the nose inlet is the primary factor governing the maximum critical speed. The effect of inlet-diameter ratio (ratio of inlet diameter to maximum diameter) on critical speed is, in general, secondary; but this ratio has an important function in governing the extent of the inlet-velocity-ratio range for maximum critical speed. The highest critical Mach number attained for any of the nose inlets tested was 0.89.

PB L 86452. BARNES, ROBERT H. High-speed aerodynamic characteristics of a four-engine bomber airplane as determined from tests of a 0.075-scale model. (Natl Advisory Committee for Aeronautics Rept A-82) Jan 1944. 111 p. Price: Microfilm-$3.75 - Photostat-$12.00
Tests of the airplane model reported herein included investigations to determine the longitudinal stability and control, and the effects of various constituent parts or their modification on longitudinal stability and control, critical speed, and distribution of wing load. The changes in the

model, made in attempts to improve longitudinal control and to increase critical speed, were addition of auxiliary control flaps on the lower surface of the wing, revision of windshield, increase in dimensions of outboard nacelles, and alteration in profile of wing leading edge. Deflection of the landing flaps a small amount was also tried as a means for improving the longitudinal control. The results of the tests indicated: (1) Additional lift for recovery from high-speed dives may be obtained either by deflecting the landing flaps about 10° or by adding auxiliary control flaps. (2) None of the modifications tested increased the critical speed of the model. (3) In order to fly level at any altitude above 32,000 feet, the critical speed of the airplane will be exceeded.

PB L 86162. BELL, JOE W. and HAVENS, ROBERT F. Tank tests of a 1/8-size dynamic model of the PB2Y-3 airplane with increased power - NACA model 131. (Natl Advisory Committee for Aeronautics Rept L-688). Jun 1943. 41 p. Price: Microfilm-$2.00 - Photostat-$5.00

By installation of 1600-horsepower engines in the PB2Y-3 airplane in place of the present 1200-horsepower engines the operation of the airplane was expected to include flights at a gross load of 76,000 pounds. Since earlier tests of a 1/8-size dynamic model of the PB2Y-3 airplane indicated that it would be unstable on the water at loads of 76,000 pounds, further tests of the model were necessary. The stability and spray tests described in this report were made to determine the performance of the model on the water when tested at both the present and the projected conditions of gross load and engine power. Drawings and twenty-six graphs are included.

PB L 86996. BOGDONOFF, SEYMOUR M. Wind-tunnel investigation of a low-drag airfoil section with a double slotted flap. (Natl Advisory Committee for Aeronautics Rept L-697; AC Rept 3120). Sep 1943. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00

Tests of a 0.309-chord double-slotted flap on an NACA 65,3-118, a = 1.0 airfoil section have been made in the NACA two-dimensional low-turbulence tunnel and the NACA two-dimensional low-turbulence pressure tunnel. The purpose of the investigation was to determine the lift, drag, and pitching-moment characteristics for a range of flap deflections. The results indicate that the combination of a low-drag airfoil and a double-slotted flap of which the two parts moved as a single unit gave higher maximum lift coefficients than have been obtained with plain, split, or slotted flaps on low-drag airfoils. The maximum lift coefficients were almost as high as those obtained on conventional airfoils of about the same thickness with 0.40-chord venetian-blind and double-slotted flaps. The pitching moments were comparable to those obtained with other high lift devices on conventional airfoils for similar lift coefficients.

PB L 85580. BOSHAR, JOHN. Some flight measurements of pressure distribution during tail buffeting. (Natl Advisory Committee for Aeronautics Rept L-656; Memo Rept L5J06). Oct 1945. 21 p. Price: Microfilm-$1.50-Photostat-$3.00.

Results are presented of pressure-distribution measurements taken over the horizontal tail surfaces of a Curtiss P-40K airplane during several low-speed pullups to abrupt stall in which tail buffeting was experienced. The results indicate in general that the chordwise load distributions obtained during buffeting are of the type usually associated with angle-of-attack changes. In the early part of the stall the center of buffeting is concentrated on the inboard sections of the tail while after the stall has spread spanwise on the wing the whole tail is enveloped. The average value of the increment in the tail normal-force coefficient due to buffeting was ±0.25. The frequency of the pre-stall disturbances and those after the stall differ; both fluctuations appear regular enough to promote resonant conditions if the tail were of the proper frequency.

PB L 85557. BRASLOW, ALBERT L. Investigation of surface irregularities on an NACA 63(420)-416, a = 1.0 airfoil section for the Glenn L. Martin Company design 195. (Natl Advisory Committee for Aeronautics Rept L 534). Oct 1943. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00.

The results of an investigation made in the NACA two-dimensional low-turbulence pressure tunnel of surface irregularities on a 60-inch-chord low-drag airfoil section are presented. Tests of riveted and piano-hinge-type skin joints at the front and rear spar locations (15-percent and 60-percent chord, respectively) in various combinations and modifications showed that either skin joint at the front spar, however treated, caused a substantial increase in drag, whereas irregularities at the rear spar caused no significant increase in drag so long as no leakage of air through the airfoil was present; leakage of air through the airfoil at either spar resulted in an additional increase of drag. An aileron slat installed on the lower surface of the airfoil caused no significant drag increment.

PB L 85587. BREWER, GERALD W. Langley full-scale tunnel stability and control tests of the Bell XP-59A airplane. (Natl Advisory Committee for Aeronautics Rept L 626; Memo Rept L5A18) Jan 1945. 77 p. Price: Microfilm-$2.75 - Photostat-$8.00

Drag clean-up and stability investigations of the Bell XP-59A jet-propelled airplane have been conducted in the Langley full-scale tunnel. At present, very little data are available pertaining to the effect of jets on the stability of an airplane. Some tests were therefore made to investigate in detail the effect of jets on the longitudinal-stability characteristics of this airplane configuration. The results of these tests indicate that with the flaps retracted, approximately 70 percent of the change in longitudinal stability due to rated-thrust operation is caused by the thrust moment of the jet. The results of the tests also show that with the exception of two neutrally stable conditions (rated-thrust low-speed flight, flaps down 45° and rated-thrust high-speed flight, flaps neutral) the airplane is longitudinally stable, stick fixed, for the design center-of-gravity location. Although a sufficient amount of data for a complete lateral stability and control analysis were not obtained, the tests made with the engines inoperative show that the airplane, with the landing flaps fully deflected, may be laterally unstable in flight at lift coefficients of about 0.8. The rolling response of the airplane due to full aileron deflection is considered low for both high-speed and low-speed flight conditions.

PB L 87344. BROWN, CLINTON E. Internal and external aerodynamics of ducted bodies at supersonic speeds. (Natl Advisory Committee for Aeronautics Rept L-726; CB L6B26). Apr 1946. 28 p. Price: Microfilm-$1.50 - Photostat-$3.00

A method for calculating the lift, moment, and pressure drag of slender open-nose bodies of revolution at supersonic speeds is described. An application of the method to a typical ramjet fuselage is shown to give excellent agreement with available experimental data. A drag comparison was omitted because of the presence of skin-friction drag in the experimental drag data. The problem of obtaining high total-pressure recovery at supersonic speeds is discussed and some experimental data obtained at the Langley Memorial Aeronautical Laboratory of the NACA on circular diffusers is presented. It is pointed out that variable-geometry diffusers might be designed to give high diffuser efficiencies over a wide range of Mach number.

PB L 85927. BROWN, CLINTON E. and PARKER, HERMON M. A method for the calculation of external lift, moment, and pressure drag of slender open-nose bodies of revolution at supersonic speeds. (Natl Advisory Committee for Aeronautics Rept L-720; AC Rept L5L29) Mar 1946. 33 p. Price: Microfilm-$1.75 - Photostat-$4.00

An approximate method is presented for the calculation of the external lift, moment, and pressure drag of slender open-

nose bodies of revolution at supersonic speeds. The lift, moment, and pressure drag of a typical ram-jet body shape are calculated at Mach numbers of 1.45, 1.60, 1.75, and 3.0 and the lift and moment results are compared with available experimental data. The agreement of the calculated lift and moment data with the experimental data is excellent. The pressure-drag comparison was not presented because of the uncertainty of the amount of skin-friction drag present in the experimental results. It was found that the lift coefficient definitely increased with increasing Mach number, whereas the moment coefficient taken about the midpoint of the body and the drag coefficient decreased with increasing Mach number. The manner in which the method may be applied to slender bodies of revolution with annular air inlets is shown. The excellent agreement of the calculated lift and moment results with experimental data indicates that the approximate method may be reliably used for obtaining the aerodynamic characteristics of slender bodies that are required for efficient supersonic flight.

PB L 86064. CAHILL, JONES F. Aerodynamic tests of an NACA 66 (215)-116, a = 0.6 airfoil with a 0.25c slotted flap for the Flestwings XA-39 airplane. (Natl Advisory Committee for the Aeronautics Rept L-629; Memo Rept L4K21) Nov 1944. 37 p. Price: Microfilm-$1.75 - Photostat-$4.00

Tests were conducted in the Langley two-dimensional low-turbulence tunnels on a 24-inch-chord model of the NACA 66(215)-116, a=0.6 airfoil with a 0.25-chord slotted flap. It was desired to obtain optimum flap pivot positions for the following conditions: (a) a high maximum lift coefficient at a high flap deflection; (b) high lift coefficients with reasonably low drags at a flap deflection of 30°; and (c) a positive lift coefficient with low drags at a negative angle of attack for a flap deflection of 15°. These conditions were determined from a consideration of the landing, take-off, and strafing requirements of the airplane. Two slot entry lips were tested to find the effect of a door which closed the slot on the lower surface when the flap was retracted. Flap loads were obtained at certain configurations and the effects of external flap hinges and of the removal of the internal slot fairing skin were investigated. The results showed that no single pivot position was the optimum for all of the specified conditions. Covering the slot by a door on the lower surface was found to cause lower drags at small flap deflections than leaving the slot open. One flap hinge was found to contribute an additional drag coefficient of 0.0002 with the flap retracted, based on an area equal to the chord squared. The removal of the interior slot fairing skin was shown to have little or no adverse effect.

PB L 85552. COLEMAN, ROBERT P. A preliminary theoretical study of helicopter-blade flutter involving dependence upon coning angle and pitch setting. (Natl Advisory Committee for Aeronautics Rept L 692; Memo Rept L6D12) Jul 1946. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00

A preliminary analysis has been made of the conditions of stability of free oscillations of a hinged rotor in hovering flight. The case analyzed is a rotor with hinges allowing freedom in flapping and lagging and having a completely reversible cyclic pitch-control system, so that a twisting moment on a blade moves the control stick without hindrance from spring or friction constraint. The principal results of this study are presented in the form of a stability chart in which the quantities specifying average coning angle, pitch setting, moments of inertia, chordwise and spanwise mass distribution are combined into generalized parameters in such a way that the stability condition can be plotted on a single chart. Several lines of attack for further theoretical work are suggested, which would extend the generality and strengthen the validity of the analysis.

PB L 86020. CRANE, ROBERT M. and HOLTZCLAW, RALPH W. Wind-tunnel investigation of ailerons on a low-drag airfoil. II. The effect of thickened and beveled trailing edges. (Natl Advisory Committee for Aeronautics Rept A-54; AC Rept 4A15) Jan 1944. 50 p. Price: Microfilm-$2.00 - Photostat-$5.00

An investigation was made in the Ames Aeronautical Laboratory 7- by 10-foot wind tunnel of the effects of modifications to the trailing edge of a 0.20-chord plain sealed aileron on an NACA 66,2-216 (a = 0.6) airfoil. The modifications considered consisted of various amounts of symmetrical thickening and beveling of the aileron trailing edge. Aileron control characteristics were estimated for two high-speed airplanes equipped with normal-profile ailerons and with the modified ailerons. Thickening and beveling the trailing edge of the aileron was found to reduce the aileron effectiveness, reduce the slope of the wing section lift curve, and reduce the hinge-moment coefficients. These effects were maximum for the bevel, the length of which was 20 percent of the aileron chord, and decreased for both increasing and decreasing bevel lengths. Thickening and beveling the trailing edge caused an increase of 0.0001 in the minimum profile-drag coefficient. The optimum beveled trailing edge on a typical aileron installation caused a reduction of 50 percent in the control force for a large rate of roll at high speed. When used in conjunction with internal balance, the thickened and beveled profile resulted in a 30-percent reduction in the nose balance required for a given control force at high speed. Under these conditions the variation of control force with rate of roll was more nearly linear for the aileron of normal profile than for the ailerons with thickened and beveled trailing edges.

PB L 85924. DAVIDSON, MILTON and TURNER, HAROLD, R., JR. Effects of mean-line loading on the aerodynamic characteristics of some low-drag airfoils. (Natl Advisory Committee for Aeronautics Rept L-699; AC Rept 3127). Sep 1943. 18 p. Price: Microfilm-$1.25 - Photostat-2.00.

The effect of variations in the type of mean line on the section characteristics of several representative NACA low-drag airfoils was investigated. The test results are compared with theoretical predictions and indicate trends that facilitate the choice of mean line in the absence of tests.

PB L 86310. DELANY, NOEL K. and KAUFFMAN, WILLIAM M. Correlation of wind-tunnel predictions with flight tests of a twin-engine patrol airplane. I - Longitudinal-stability and control characteristics. (Natl Advisory Committee for Aeronautics Rept A-86; Memo Rept A5D04) Apr 1945. 61 p. Price: Microfilm-$2.50 - Photostat-$7.00

The longitudinal-stability and -control characteristics of a twin-engine patrol airplane as predicted from the results of wind-tunnel tests of a powered model and as measured in flight are compared in this report. The accuracy of the wind-tunnel predictions and the reasons for discrepancies are analyzed and discussed. The predictions from wind-tunnel-test data were in good agreement with flight-test results. The results show that such predicted flying-qualities characteristics are sufficiently accurate to indicate the unsatisfactory longitudinal-stability and -control characteristics of airplanes in the preliminary design stage. The wind-tunnel data may be used to deduce the chief reasons for these unsatisfactory characteristics and to indicate possible methods of improvement. The aerodynamic longitudinal-stability derivatives as estimated from flight-test data and as measured in the wind tunnel were, in general, in good agreement. The differences which occurred could be attributed partially to small physical dissimilarities between the model and the airplane and to inaccuracies involved in estimating the flight thrust coefficients for use in matching power conditions.

PB L 86282. DOENHOFF, ALBERT E. VON and HORTON, ELMER A. Preliminary investigation in the NACA low-turbulence tunnel of low-drag airfoil sections suitable for admitting air at the leading edge. (Natl Advisory Committee for Aeronautics Rept L-694) Jul 1942. 38 p. Price: Microfilm-$1.75 - Photostat-$4.00

An investigation was carried out in the NACA low-turbulence tunnel to develop low-drag airfoil sections suitable for

emitting air at the leading edge. A thickness distribution having the desired type of pressure distribution was found from tests of a flexible model. Other airfoil shapes were derived from this original shape by varying the thickness, the camber, the leading-edge radius, and the size of the leading-edge opening. Data are presented giving the characteristics of the airfoil shapes in the range of lift coefficients for high-speed and cruising flight. Shapes have been developed which show no substantial increase in drag over that of normal low-drag type sections having minimum pressure at the same position along the chord. Many of these shapes appear to have higher critical compressibility speeds than plain airfoils of the same thickness. Low-drag airfoil sections have been developed with openings in the leading edge as large as 41.5 percent of the maximum thickness. The range of lift coefficients for low drag in several cases is nearly as large as that of the corresponding plain airfoil sections. Measurements of maximum lift characteristics were made for only a few configurations and no conclusions could be drawn as to what effect the leading-edge openings would have on the maximum lift characteristics of the complete wing.

PB L 85579. DONELY, PHILIP. Experimental investigation to determine the relative magnitude of vertical and horizontal gusts in the atmosphere. (Natl Advisory Committee for Aeronautics Rept L-576). Jul 1940. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00

The purpose of the present investigation was to obtain data on the vertical and horizontal gusts in the atmosphere by reworking accelerometers and airspeed records from past investigations of vertical gusts. The records which form the basis of this investigation were obtained from fifteen flights of the XBM-1 airplane during gust surveys of cloud formations up to altitudes of 15,000 feet and from fifteen flights of the Aeronca, C-2N. airplane in clear air at altitudes less than 3,500 feet. The records from fifteen flights for each airplane were evaluated to obtain the vertical and horizontal gust velocities. The data were used to make the frequency curves, given in figures 1 to 4. In order to obtain a more convenient comparison the data in figures 1 to 4 were used to make cross plots at equal frequencies for the two airplanes. These results are shown in figures 5 and 6.

PB L 87569. ELLIS, MACON C., JR. Effects of a typical nacelle on the characteristics of a thick low-drag airfoil critically affected by leading-edge roughness. (Natl Advisory Committee for Aeronautics Rept L-698; CB Rept 3D27). Apr 1943. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00.

Tests were made to study the effects of a typical nacelle on the characteristics of a thick low-drag airfoil which had been shown from previous tests to be subject to separation difficulties resulting from leading edge roughness; that is, the airfoil with roughness had been shown to have sharp drag increases at moderate angles of attack. The present results tend to substantiate the results of previous tests which indicated that the airfoil was unconservative with respect to separation difficulties. On the other hand, unconservative sections of this type appear to show less serious drag increases with nacelle interference than with leading-edge roughness. The leading-edge roughness adopted as a standard may therefore be considered to remain the most satisfactory means of judging such airfoils.

PB L 87568. ELLIS, MACON C., JR. Some lift and drag measurements of a representative bomber nacelle on a low-drag wing. (Natl Advisory Committee for Aeronautics Rept L-695). May 1942. 7p. Price: Microfilm-$1.00 - Photostat-$1.00.

Tests of a representative bomber nacelle on a low-drag wing were made in the NACA two-dimensional tunnel. Results show the adverse or interference effects of the nacelle on the low-drag wing to be small.

PB L 86456. ELLIS, MACON C., JR. Some lift and drag measurements of a representative bomber nacelle on a low-drag wing - II. (Natl Advisory Committee for Aeronautics Rept L 696). Sep 1942. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00.

Tests of a second representative bomber nacelle on a low-drag wing at a large value of the Reynolds number were made in the NACA two-dimensional low-turbulence pressure tunnel. Results show the drag and interference of the nacelle on the low-drag wing to be small.

PB L 85932. GOETT, HARRY J. and PASS, H. R. Effect of propeller operation on the pitching. (Natl Advisory Committee for Aeronautics Rept L-761). May 1941. 79 p. Price: Microfilm-$2.75 - Photostat-$8.00.

An investigation of the effects of propeller operation on pitching moments has been made with particular reference to the effect of propeller forces, the field of flow in the slipstream, and the increments of lift on the wing and the tail. Two single-engine monoplanes without flaps were tested in the full-scale wind tunnel and efforts were made to correlate the results with the available theory of the phenomena involved. A procedure, directly applicable only to single-engine monoplanes without flaps, has been set up for predicting the effect of propeller operation on pitching moments. This procedure is, at least for the present, a satisfactory engineering approximation, as indicated by the checks obtained for the two airplanes tested. An example illustrating the procedure has been included.

PB L 86207. HALL, CHARLES F. and MANNES, ROBERT L. Longitudinal characteristics and aileron effectiveness of a midwing airplane from high-speed wind-tunnel tests. (Natl Advisory Committee for Aeronautics Rept A-84) Sep 1944. 74 p. Price: Microfilm-$2.75 - Photostat-$8.00

Wind-tunnel tests of a 0.175-scale model of a midwing airplane were made in order to determine its high-speed longitudinal characteristics, to test devices for improving the longitudinal control at high Mach numbers, and to determine the aileron effectiveness at high Mach numbers. The force and moment coefficients computed from the test data are presented in this report. The control forces, elevator angle, and aileron angle for several flight conditions are predicted. The maximum speed and Mach number attained at several gliding angles are estimated. The data indicate that, with respect to elevator-angle variation with speed, the airplane will become unstable at approximately 0.7 Mach number. Two devices for improving the longitudinal control - a wing-profile modification and auxiliary control flaps - increase the Mach number at which this instability occurs. The former device increases it by as much as 0.075 and the latter by 0.05. However, because the effectiveness of the flaps decreases between 0.75 and 0.8 Mach number, their over-all characteristics are less favorable than those of the wing-profile modification.

PB L 86455. HOOVER, HERBERT H. and WHITE, MAURICE D. Lateral-control characteristics of North American XP-51 airplane (A. C. No. 41-38) with beveled trailing-edge ailerons in high-speed flight. (Natl Advisory Committee for Aeronautics Rept L-597) Nov 1942. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00

The flight tests of beveled trailing-edge ailerons on the North American XP-51 airplane, as reported in reference 1, were extended to determine the aileron characteristics in high-speed dives. Standard NACA recording instruments were used to determine airspeed, aileron position, stick force, and rate of roll. The tests were carried to an indicated airspeed of approximately 492 miles per hour (520 miles per hour true airspeed) at an altitude of about 6000 feet. The maximum airspeed corresponds to a Mach number of approximately 0.69. The results obtained show that the beveled trailing-edge form of aerodynamic balance, as used on the XP-51 ailerons, had no abnormal or unusual characteristics in high-speed flight. The aileron effectiveness and aileron hinge moments remained essentially proportional to aileron deflection at all speeds tested and there was no tendency for the ailerons to shake or overbalance.

PB L 85582. JOHNSON, HAROLD I. Estimates of the vertical-tail loads of a Bell P-63A-1 airplane (AAF no. 42-68889) in accelerated rolling maneuvers based on flight tests with two vertical-tail arrangements. (Natl Advisory Comittee for Aeronautics Rept L 600; Memo Rept L4K30a). Nov 1944. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00
Extensive flight tests were made at the NACA with a P-63A-1 airplane. One phase of these tests was concerned with the directional characteristics of the airplane because it was found that the original vertical tail did not provide a sufficient degree of directional stability. To improve this characteristic an enlarged vertical tail was designed and built. Indentical directional-stability tests were seen with both the original and the enlarged vertical tails installed on the airplane. Since data on the yaw characteristics of the airplane were available for two different vertical-tail installations, it was possible to study the effect of directional stability on the vertical-tail loads in rolling maneuvers. The results of this study are presented in this report.

PB L 86728. JOHNSON, HAROLD I. Flight investigation to improve the dynamic longitudinal stability and control-feel characteristics of the P-63A-1 airplane (AAF no. 42-68889) with closely balanced experimental elevators. (Natl Advisory Committee for Aeronautics Rept L 730; Memo Rept L6B20). Jul 1946. 66 p. Price: Microfilm-$2.50 - Photostat-$7.00
This report presents the results of flight tests of a control-feel device. The device was tested in combination with an experimental elevator and bobweight which gave unsatisfactory dynamic stability and control-feel characteristics in previous tests. Flight tests were made to determine the effect of the device on the behavior of the airplane during control-free short-period oscillations, stick-release pull-ups, and rapid controlled pull-ups. The tests covered wide ranges of both center-of-gravity location and altitude. Brief tests also were made with a second device to determine the effect of viscous friction on the elevator-free characteristics. 3 drawings, 4 photographs, and 22 graphs are included.

PB L 86022. JONES, R. T. and UNDERWOOD, W. J. Wind-tunnel investigation of a beveled aileron shape designed to increase the useful deflection range. (Natl Advisory Committee for Aeronautics Rept L-651). Apr 1944. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00
When beveled ailerons were constructed for the XP-51 airplane, the level was built up by spreading the upper and lower surfaces apart behind the hinge. During flight tests, it was noted that these ailerons showed a somewhat greater useful range of deflection and gave slightly better control at low speed than did the original ailerons. To further increase the useful range of angular deflections, a new aileron was designed. The purpose of the present investigation made in the Langley Memorial Aeronautical Laboratory two-dimensional low-turbulent tunnel was to determine the general aerodynamic characteristics of this aileron and, in particular, to determine its useful angular range. Six sketches and six graphs are included.

PB L 87807. KANTROWITZ, ARTHUR and DONALDSON, COLEMAN DUP. Preliminary investigation of supersonic diffusers. (Natl Advisory Committee for Aeronautics Rept L-713; AC Rept L5D20). May 1945. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00
The deceleration of air from supersonic velocities in channels has been studied. It has become apparent that a normal shock in the diverging part of the diffuser is probably necessary for stable flow, and ways of minimizing the intensity of this shock have been developed. The effect of various geometrical parameters, especially contraction ratio in the entrance region, on the performance of supersonic diffusers has been investigated. By the use of these results, diffusers were designed which, starting without initial boundary layer, recovered 90 percent of the kinetic energy in supersonic air streams up to a Mach number of 1.85.

PB L 85890. KARMAN, THEODORE VON. Some contemporary problems of aerodynamics. (David W. Taylor Model Basin Translation 86). Jan 1944. 22 p. Price: Microfilm-$1.50 - Photostat-$3.00
This is a translation of an article which appeared in "Journées Techniques Internationales de L'Aéronautique, Nov. 28-Dec. 2, 1932." In this article the following subjects are discussed: 1) the development of aerodynamics in prior years; and 2) steps taken in establishing a science of aeronautic mechanics. A bibliography and fifteen charts are included.

PB L 86515. LAND, NORMAN S. Characteristics of an NACA 66, S-209 section hydrofoil at several depths. (Natl Advisory Committee for Aeronautics Rept L-757; CB Rept 3E27). May 1943. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report gives the results of tests of a hydrofoil with a section that was specifically designed to meet some of the requirements of high-speed underwater operation. This section has a sharp leading edge and a substantially flat chordwise pressure distribution at a lift coefficient of 0.2. It has been designated the NACA, S-209 section. A sketch, tables, and graphs are included.

PB L 85558. LAND, NORMAN S. The effect of afterbody length on the hydrodynamic stability of a dynamic model of a flying boat - Langley tank model 134. (Natl Advisory Committee for Aeronautics Rept L-684; Memo Rept L5I28a). Oct 1945. 14 p. Price: Microfilm-$1.25. - Photostat-$2.00.
A program of model tests has been completed at Langley tank no. 1 which will furnish a qualitative guide as to the relation of length of afterbody and depth of step. The model used for the tests was a 1/12-size unpowered dynamic model of a hypothetical 160,000-pound airplane. The results showed that an increase in length of afterbody requires an accompanying increase in depth of step to maintain adequate landing stability. Changing the length of afterbody and depth of step in such a manner as to maintain a given landing stability will result in only small changes in take-off stability.

PB L 87349. LIDDELL, ROBERT B. The aerodynamic tests of three Edo floats for the SB2U-3, OS2U-2, and XSB2C-2 seaplanes - NACA models 106-K, 107-K, and 125-AH. (Natl Advisory Committee for Aeronautics Rept L 722). Mar 1942. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00
Aerodynamic tests have been made on 1/4-scale models of the Edo seaplane floats, model 106-K, 107-K and 125-AH. The models used in these tests were originally constructed for tests in the NACA tank. They were made of wood and had a smooth lacquer finish. The basic dimensions and the tables of offsets of the models are shown in tables and figures. A typical float installation in the 7- by 10-foot wind tunnel is shown. The test results are plotted in figures.

PB L 87854. LIENARZ. Comparison of high-speed tests on several airplane models. (AAF T-2 Translation 1042, ZWB UM 7823). Feb 1947. 51 p. Price: Microfilm-$2.25 - Photostat-$6.00
For the types Me-163B, Me-262, Me-328, He-177, He-219, Ar-234, and Ju-287 the effect of the Mach number is investigated for the total drag of parts and groups of parts, for center of pressure, moments in diving and downwash angle.

PB L 86863. LIPSON, STANLEY. Static-thrust investigation of full-scale PV-2 helicopter rotors having NACA 0012.6 and 23012.6 airfoil sections. (Natl Advisory Committee for Aeronautics Rept L 749; Memo Rept L6D24) May 1946. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00

An investigation to compare the performance of two 25-foot-diameter rotors constructed by the P-V Engineering Forum has been conducted at the Langley full-scale tunnel. The rotors, which were designed to operate on the PV-2 helicopter, had identical dimensions and were similar in construction but differed in blade airfoil section - one having an NACA 0012.6 airfoil section and the other, an NACA 23012.6 airfoil section. The tests were conducted at three different rotational speeds including the design rotor speed of 371 rpm. The results of the tests are presented as the variation of torque coefficient with thrust coefficient. A comparison of the results obtained with the 0012.6 rotor from the present tests and from a previous investigation shows excellent agreement. Only small differences were apparent between the performance characteristics of these symmetrical- and cambered-section blades although at the higher thrust coefficients the performance of the cambered blades became increasingly better. The comparison of their performance is probably impaired by the poorer surface condition of the cambered rotor. The performance of both rotors could be substantially improved, as indicated by previous full-scale-tunnel tests, by the elimination of certain surface irregularities. The test results also showed that the effect of a discus which was 84 inches in diameter (28 percent of the rotor diameter) was negligible in the range of normal hovering flight conditions.

PB L 86868. LOFTIN, LAWRENCE K., JR. and RICE, FRED J., JR. Two-dimensional wind-tunnel investigation of two NACA low-drag airfoil sections equipped with slotted flaps and a plain NACA low-drag airfoil section for XF6U-1 airplane. (Natl Advisory Committee for Aeronautics Rept L-746; Memo Rept L5L11) Jan 1946. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00

A two-dimensional wind-tunnel investigation was conducted to determine the aerodynamic characteristics of the NACA 65(215)-114 airfoil (root section), the NACA 65_1-212, a = 0.6, airfoil (tip section), and an intermediate airfoil section of the Chance-Vought XF6U-1 airplane. The root and intermediate airfoil sections were equipped with 25.92-percent airfoil-chord and 33.62-percent airfoil-chord slotted flaps. The optimum angular flap deflection for maximum lift was found to be 40° and maximum lift coefficients corresponding to this deflection were 2.63 and 2.80 for the root and intermediate sections at a Reynolds number of 9×10^6. The use of a 4° cruising flap deflection caused the lift coefficient corresponding to the upper limit of the low-drag range to increase from 0.3 to 0.4 for the root section and from 0.35 to 0.5 for the intermediate section, both at a Reynolds number of 9×10^6. On both airfoils the increment in minimum drag coefficient caused by the 4° flap deflection was approximately 0.001 at a Reynolds number of 9.0×10^6.

PB L 85925. LOWRY, JOHN G. Additional power-on wind-tunnel tests of the 1/8 scale model of the Brewster F2A airplane with full-span slotted flaps. (Natl Advisory Committee for Aeronautics Rept L-708). Oct 1941. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00

Additional tests as recommended in a previous report were made in the 7- by 10-foot wind tunnel of the 1/8 scale model F2A airplane to determine the angle of attack of horizontal tail and the elevator angles required for trim with flaps down. Eight graphs are included.

PB L 86866. LOWRY, JOHN G. and others. Aerodynamic characteristics of several modifications of a 0.45 scale model of the vertical tail of the Curtiss XP 62 airplane. (Natl Advisory Committee for Aeronautics Rept L 736; Memo Rept I6F27). Jul 1946. 43 p. Price: Microfilm-$2.00. - Photostat-$5.00.

The 0.45-scale model of the Curtiss XP-62 vertical tail surface mounted on a stub fuselage, was tested in the Langley 7-by 10-foot tunnel. The aerodynamic characteristics of the vertical tail with a plain rudder, two amounts of overhang and an internal balance are presented. Tab characteristics on the plain rudder are also presented. The results of this investigation indicate that the overhang and the internal balance of about the same balance area have very similar characteristics throughout the angle-of-yaw and rudder-deflection range. The results indicate that the tab is effective at least to tab angles of ±20° over both the rudder and angle-of-attack range except for the case of large positive angles of attack combined with large negative rudder deflections.

PB L 86861. LOWRY, JOHN G. Power-off wind-tunnel tests of the 1/8 scale model of the Brewster F2A airplane. (Natl Advisory Committee for Aeronautics Rept L-543). Jun 1941. 30 p. Price: Microfilm-$1.50 - Photostat-$3.00

The object of the tests was to determine the power-off static lateral and longitudinal stability and control of the complete model with a modified wing which had a full-span NACA slotted flap and both plain and slot-lip ailerons. A three view drawing of the complete model with the original wing is shown in figure 1, and a three view drawing of the modified wing is shown in figure 1 (a). The tests were made in the NACA 7- by 10-foot wind tunnel, to a test Reynolds number of about 570,000 based on the mean aerodynamic chord of 9.36 inches. Twenty-one graphs are included.

PB L 87576. LOWRY, JOHN G. and TOLL, THOMAS A. Power-on longitudinal stability and control tests of the 1/8 scale model of the Brewster F2A airplane equipped with full-span slotted flaps and a new horizontal tail. (Natl Advisory Committee for Aeronautics Rept L-709). Mar 1942. 39 p. Price: Microfilm-$1.75 - Photostat-$4.00

The object of the tests was to determine the power-on static longitudinal stability and control characteristics of the model with the new horisontal tail. Some additional tests to determine the characteristics of the model, both in free air and near the ground, were made after certain modifications had been made to the horizontal tail. A three view drawing of the complete model is presented in figure 1. Photographs of the model as installed in the tunnel are presented in figures 2 and 3. Figure 4 is a detail drawing of the new horizontal tail with a superimposed outline of the plan form of the original horizontal tail. Nineteen graphs are included.

PB L 86865. LOWRY, JOHN G. Power-on wind-tunnel tests of the 1/8 scale model of the Brewster F2A airplane with full-span slotted flaps. (Natl Advisory Committee for Aeronautics Rept L-707). Aug 1941. 33 p. Price: Microfilm-$1.75 - Photostat-$4.00

The object of the tests was to determine the power-on static lateral and longitudinal stability of the complete model with a new wing which had a full-span slotted flap and a plain and slot-lip aileron for lateral control. A three-view drawing of the complete model with original wing is shown in fig. 1 and the modified wing in fig. 2. The modified wing which has a full-span NACA slotted flap was used in this series of tests. Twenty-one graphs are included.

PB L 88092. LUDWIG. Application of locus-curve theory to control problems. (AAF T-2 Translation 2111). Jan 1948. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

This is a supplement to a report which deals with control problems treated by means of the locus theory. The locus of the vector representing coupling of two systems is called, when drawn for all possible frequencies from zero to infinity, the control curve. In this report, it is shown that the number of circulations of the control curve about the zero point is closely connected with the position of the zeros of the characteristic equation of vibration, i.e., the properties of stability.

PB L 87348. MCKEE, JOHN W. and LIDDELL, ROBERT B. Wind-tunnel investigation of a revised horizontal tail surface for the Grumman TBF-1 airplane. (Natl Advisory Committee for Aeronautics Rept L-702). Feb 1943. 43 p. Price: Microfilm-$2.00 - Photostat-$5.00

This report covers an investigation made in the LMAL 7-by 10-foot tunnel of the aerodynamic characteristics of a revised

0.5 scale model of the Grumman TBF left horizontal tail surface. The test was undertaken to determine if a horizontal tail surface with a large overhang would reduce the high stick forces in maneuvers that the airplane had with the original horn-balanced elevator, without appreciably affecting the longitudinal stability characteristics of the airplane. Tables, sketches, and fourteen graphs are included.

PB L 86457. NELSON, WILLIAM J. and EBERT, JOHN W. JR. An investigation of the air flow around a Martin PBM-3 flying boat by means of tufts. (Natl Advisory Committee for Aeronautics Rept L-674). Apr 1943. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00

These observations are part of an analysis which were conducted by the NACA for the Bureau of Aeronautics to aid in the determination of possible methods of reducing the air drag of this flying boat. The behavior of the tufts on the hull and tip floats at various airplane speeds has been recorded by still and moving pictures taken from an accompanying airplane; tufts on the wing, nacelles, radar fairing, and gun turrets were observed but not photographed. Eight photographs and one drawing of the plane are included.

PB L 86065. OLSON, ROLAND E. Investigation of the effect of spray strips on the low-speed spray characteristics of a 1/8 size model of the Consolidated PB2Y-3 flying boat-NACA model 116E-3. (Natl Advisory Committee for Aeronautics Rept L-616). Jan 1943. 25 p. Price: Microfilm-$1.50 - Photostat-$3.00

When the PB2Y-3 flying boat is operated at gross weights very much in excess of the original gross weight of 56,000 pounds, the spray from the bow becomes excessive and causes serious damage to the propellers. One measure for at least alleviating the difficulties caused by the spray was thought to be the fitting of suitable spray strips around the bow extending aft. The tests described in this report have been made to investigate the effect of such spray strips on the spray and determine in what form they should be fitted to give the most practicable answer to the problem of controlling the spray at heavy loads. Eight sketches, eight graphs, and twenty-four photographs are included.

PB L 86061. OLSON, ROLAND E. and BELL, JOE W. Spray characteristics of a powered dynamic model of a flying boat having a hull with a length-beam ratio of 9.0. (Natl Advisory Committee of Aeronautics Rept L 763; Ar Rept L5129). Jan 1946. Jan 1946. 31 p. Price: Microfilm-$1.75 - Photostat-$4.00

An investigation of the spray characteristics of a $\frac{1}{10}$-size powered dynamic model of a twin-engine flying boat was made in Langley tank no. 1. The design was similar to that of the Boeing XPBB-1 flying boat, but the length-beam ratio of the hull was increased from 6.3 to 9.0 while constant length^2-beam product and height of hull were maintained. The hull frontal area was reduced approximately 23 percent and the volume was reduced approximately 11 percent by this increase in length-beam ratio. At the same gross load, the spray characteristics of the model with a length-beam ratio of 9.0 compared favorably with those of the model of the XPBB-1 flying boat and no adverse effects on the spray characteristics were introduced by the higher length-beam ratio and smaller hull.

PB L 86867. OLSON, ROLAND E. and HAAR, MARVIN I. Tank tests of a powered dynamic model of a flying boat having an afterbody length beam ration of 4.7 - Langley tank model 203C-1. (Natl Advisory Committee for Aeronautics Rept L 762; Memo Rept L5128). Oct 1945. 19 p. Price: Microfilm-$1.25 - Photostat-$2.00.

Tank tests of a 1/10-size model of a hypothetical flying boat having an afterbody length-beam ratio of 4.7 were made in Langley tank no. 1 to determine the take-off and landing stability and the resistance characteristics. The range of stable trims was less than that of models with conventional afterbody length-beam ratios, but the range of stable positions for the center of gravity was approximately the same as that of most models. The landing stability with the depth of step used in the tests was satisfactory. The hump trim and resistance were lower than those for models with conventional afterbody length-beam ratios.

PB L 86870. PAULSON, JOHN W. and others. Stability and control force tests of four-and six-unit wing designs of low aspect ratio and 20° triangular plan form. (Natl Advisory Committee for Aeronautics Rept L-734; AC Rept L6D17a). May 1946. 31 p. Price: Microfilm-$1.75 - Photostat-$4.00.

An investigation has been made to obtain force-test data on a wing design suitable for high-speed guided missiles, particularly data on rolling moments produced in yawed and pitched attitudes. Force tests were conducted on two models of a wing design of low aspect ratio and 20° triangular plan form. One model consisted of four wings spaced 90° and the other consisted of six wings spaced 60°. Results of the tests showed that appreciable rolling moments existed for both the four- and six-unit wing designs in yawed and pitched attitudes but that the rolling moments of the six-unit design were considerably smaller than those of the four-unit design. The values of these moments, which became larger as the angles of attack and yaw were increased, were attributed to partial blanketing of one or more wings by the other wings. Fairly large control deflections were required to trim out the rolling moments produced in the climbing-turn attitudes.

PB L 86056. PEARSON, HENRY A. and SNULL, LELAND K. Control-motion studies of the PBM-3 flying boat in abrupt pull-ups. (Natl Advisory Committee for Aeronautics Rept L-577). Nov 1942. 40 p. Price: Microfilm-$1.75 - Photostat-$4.00

This paper is the first of a number of control-motion studies that were to be made in flight covering a range of types and sizes of modern airplanes. The control motion studies reported here were made on a large flying boat, the PBM-3. The control mechanism of this airplane is typical of the cable-type systems that are incorporated in large transport, cargo, or bomber airplanes as well as those employed in flying boats. For this reason, the data presented are probably representative for most large airplanes utilizing cable systems. Tables, sketches, photographs, and eighteen graphs are included.

PB L 85572. PEARSON, H. A. and GARVIN, J. B. Tail-load measurements on the XB-15 bomber in gusty air. (Natl Advisory Committee for Aeronautics Rept L-548). Apr 1941. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00

Because of the meager data concerning the gust loads on tail surfaces, the NACA undertook to make direct measurements in flight on two airplanes. This report presents the results of tests which cover a total of about 240 flying hours on the XB-15 airplane. Four graphs, two sketches, one table, and three photographs are included.

PB L 87805. PHILLIPS, W. H. A flight investigation of the stability of a towed body. (Natl Advisory Committee for Aeronautics Rept L-559). Oct 1942. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00

At the request of the Bureau of Aeronautics, a towed body was designed and built to meet certain specifications of size, weight, and stability. Flight tests were made to determine whether the body met the stability specification, which required that angular deviations in flight should be less than ±10. This requirement for stability was met in flight in smooth air, where pitching and yawing oscillations of ±0.4° and rolling oscillations of ±0.8° were measured. In rough air angular deviations in pitch and yaw were somewhat larger than those specified, and rolling motions were considerably larger.

PB L 85568. PIERCE, HAROLD B. Dynamic stress calculations for two airplanes in various gusts. (Natl Advisory Committee for Aeronautics Rept L 484) Sep 1941. 21 p. Price: Microfilm-$1.50 - Photostat-$3.00
A series of calculations was made to determine the probable dynamic wing stress of two large airplanes in atmospheric gusts. These calculations were undertaken concurrently with a more general investigation, still incomplete, from which it appears at the present time that the calculated stress agrees well with measurements on flexible wing models in the gust tunnel. The results of these special calculations indicate that in both isolated and repeated gusts of probable occurrence the dynamic overstress is about 10 percent when referred to the present static design standard.

PB L 85570. QUINN, JOHN, H., JR. Some lift and drag measurements of two configurations of a nacelle and oil-cooler scoop for the Hughes-Kaiser cargo airplane. (Natl Advisory Committee for Aeronautics Rept L-748) Sep 1943. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
Tests have been made in the NACA two-dimensional low-turbulence tunnel to determine the drag characteristics of two configurations of a 0.0476-scale nacelle and oil-cooler scoop for the Hughes-Kaiser cargo airplane. These nacelles were mounted on the Hughes-Kaiser wing section 577.325 (NACA 63,4-4(20.2) approx.). For comparison, one nacelle was tested on a thick conventional airfoil (NACA 23021). These tests were carried out at a wing Reynolds number of 2.5 million. These nacelles had a slightly favorable effect on the maximum lift coefficient. The drag increment of the nacelles was slightly less on the low-drag section than on the conventional section.

PB L 85574. RACISZ, STANLEY F. Development of wing inlets. (Natl Advisory Committee for Aeronautics Rept L 727; AC Rept L6B18) Mar 1946. 46 p. Price: Microfilm-$2.00 - Photostat-$5.00
An investigation was made in the Langley two-dimensional low-turbulence tunnels to develop a wing-inlet section having maximum lift and critical speeds as high as those of the corresponding basic airfoil section. Low inlet losses were desired for an extensive range of lift coefficient and flow rate. The investigation consisted in measurements of the lift, drag, internal-flow, and pressure-distribution characteristics of a low-drag-type airfoil section with several leading-edge air inlets. As a result of successive modifications, two wing-inlet sections having maximum lift coefficients exceeding the maximum lift coefficient of the basic airfoil section and negligible inlet losses throughout an extensive range of lift coefficient and inlet-velocity ratio have been developed. The critical Mach number of the inlet lips (the forward 0.50 chord) of one of the wing inlets was higher than that of the plain airfoil section. The critical Mach number of the entire wing-inlet section, however, was limited to a value somewhat lower than that of the plain airfoil section by the high suction pressures in the vicinity of the exit, which was located on the upper surface between 0.50 chord and 0.60 chord.

PB L 87816. RUNKEL, H. and FORMEL, H. Experimental approach for evaluating the properties of roughness and reflection of black washable paints. (AAF T-2 Translation 2038; ZWB UM 3512). Jan 1948. 12 p. Price: Microfilm-$1.25-Photostat-$2.00
Experiments to determine effects of surface roughness upon profile drag with black washable coating. Very smooth coating with poor reflection properties was obtainable by using carbon black with suitable binding agent. This coating will produce no perceptible drag within Reynolds Number range of from 6 to 12 million.

PB L 87849. SCHMITZ, G. Stress tests on the landing gear of the nose-wheel airplane Me 262 in landing. Partial report I. Investigation on the tangential forces at the damped shock on a blow-impact equipment. (AAF T-2 Translation 966; ZWB UM 1391) Apr 1947. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
Severe deflections occurred in the elastic legs and in the bracing of the landing gear of Me 262. The DVL and the E'Stelle Rechlin made tests in landing and drop test on a drum. This test report gives the results of the force measurement.

PB L 87863. SCHROEDER. Control of the rudder position without feedback. (AAF T-2 Translation 1085). Mar 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
The conduct of the rudder mechanism, which does not have the feedback of the rudder control, but instead a gyroscope which records rotary acceleration, is examined. Purpose of the examination was to determine under what conditions pitching of aggregate-oscillation is expected. The oscillation could only be prevented through aerodynamic damping of the aggregate without feedback of the rudder control. Its effectiveness is not known.

PB L 85926. SEIDMAN, OSCAR and NEIHOUSE, A. I. Comparison of free-spinning wind-tunnel results with corresponding full-scale spin results. (Natl Advisory Committee for Aeronautics Rept L 737). Dec 1938. 11 p. Price: Microfilm-$1.25 - Photostat-$2.00.
A study of comparable information on available full-scale spinning results and NACA free-spinning wind-tunnel results was made by the NACA to determine the degree of reliability of tunnel results in predicting the spinning behavior of airplanes. Full-scale spin results, mainly of a qualitative nature, were available for 21 airplanes. These results have been compared to corresponding results on models of the airplanes tested in the NACA free-spinning wind tunnel. The comparison of available recovery results showed general satisfactory agreement between model and airplane in 16 instances and disagreement in five instances, two of which were for almost identical airplanes. The model results that gave disagreement with full-scale results, however, usually agreed in some of the details such as direction of aileron effect. Using these comparisons as a criterion, it may be stated that the free-spinning wind tunnel can be expected to predict full-scale spin characteristics accurately about 80 percent of the time.

PB L 85928. SEIDMAN, OSCAR and KAMM, ROBERT W. Multiengine airplane spin characteristics as indicated by model tests in the free-spinning wind tunnel. (Natl Advisory Committee for Aeronautics Rept L 721). Jul 1942. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00.
Results of recent spin-tunnel tests on models of seven multiengine airplanes are summarized and a comparison is made with corresponding results for representative single-engine airplanes loaded along the fuselage. The multiengine airplanes give steep spins with high rates of descent and high load factors. Movement of the elevators down and of ailerons against the spin is especially effective for recovery. The rudder may be relatively less effective. For spins of single-engine airplanes loaded along the fuselage, the rudder is usually the most effective control and the ailerons should be moved with the spin to aid recovery. The difference in characteristics of the spins appears to be associated with the difference in mass distribution.

PB L 86010. SILVERSTEIN, ABE and WILSON, HERBERT A., JR. Aerodynamic characteristics of a 4-engine monoplane showing effects of enclosing the engines in the wing and comparisons of tractor- and pusher-propeller arrangements. (Natl Advisory Committee for Aeronautics Rept L-456). Apr 1938. 43 p. Price: Microfilm-$2.00 - Photostat-$5.00
Tests have been conducted in the N.A.C.A. full-scale wind tunnel on a 1/4-scale model of a large 4-engine monoplane to determine the over-all aerodynamic efficiency of a conventional wing-nacelle-engine installation as compared with power-plant installations enclosed in the wing with extension shafts to the propellers. The enclosed-engine arrangements were tested with the propellers located in one pusher and in three tractor positions. The results indicate that the addition of the four nacelles, exclusive of radiators, for liquid-cooled engines to the bare wing of the model increases the high-speed drag coefficient by 9 percent, decreases the maximum lift coefficient with flaps down by 7 percent, and

markedly reduces the maximum L/D ratio. In contrast, addition of the extension shafts for the enclosed-engine arrangements does not appreciably affect the aerodynamic characteristics of the bare-wing model. Radiators enclosed in ducts attached to the bottom of the liquid-cooled engine nacelles in combination with oil coolers in the nose of the wing increase the drag of the bare model by 20 percent. The propulsive efficiencies of the enclosed-engine arrangement are higher than those of the wing-nacelle installation, particularly in the climb condition. The best tractor and the pusher positions are of about equal merit.

PB L 85931. SMITH, NORMAN F. High-speed investigation of low-drag wing inlets. (Natl Advisory Committee for Aeronautics Rept L-732; AC Rept L4I18) Sep 1944. 70 p. Price: Microfilm-$2.50 - Photostat-$7.00

Tests of a low-drag wing-inlet section, which had been developed in a previous low-speed investigation at LMAL, were conducted at high speeds in the NACA 8-foot high-speed tunnel. Near the design angle of attack, the inlet section was found to have minimum profile drag comparable to that of a similar low-drag plain airfoil section and to have negligible inlet losses. These results corroborate those obtained in the low-speed development program. The inlet section was found to have a higher critical Mach number than a comparable airfoil section, as predicted in the previous low-speed tests of this inlet section. A gain in critical Mach number of about 0.02 was measured, which is approximately one-half the gain indicated by the previous low-speed data and the data obtained at low Mach numbers in the present investigation. No inordinate changes in section characteristics with Mach number were found. In general, the variations were quite similar to those variations found for the comparable plain airfoil section tested simultaneously.

PB L 85577. STEINER, MARGARET F. Accelerations and bottom pressures measured on a B-24D airplane in a ditching test. (Natl Advisory Committee for Aeronautics Rept L 6A5; Memo Rept L4K14) Nov 1944. 30 p. Price: Microfilm-$1.50 - Photostat-$3.00

During the full-scale ditching of an Army B-24D airplane in the James River, accelerations near the center of gravity and bottom pressures were measured. The data are presented in the form of time-history plots of the recorded longitudinal, normal, and transverse accelerations and of the bottom pressures. In most cases the maximum recorded pressure at each station exceeded the capacity of the instruments being greater than 30 to 50 pounds per square inch. The maximum recorded acceleration was 2.7g acting in the rearward direction along the longitudinal axis. The accelerations along other axes were negligible.

PB L 86052. THEODORSEN, THEODORE and REGIER, ARTHUR A. Vibration surveys of the P-40 rudder and fin-rudder assembly. (Natl Advisory Committee for Aeronautics Rept L-652). Apr 1943. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00

This report covers surveys on the vibration response of the P-40 rudder and fin-rudder assembly which were conducted during the fall of 1942 for the purpose of obtaining information on the flutter characteristics of high-speed airplanes of known performance. The tests on the rudder alone were made with the rudder suspended in a floating condtion; the tests on the fin-rudder unit were made with the fin rigidly fastened to a concrete base. Sixteen figures and one photograph are included.

PB L 88006. TURNER, WILLIAM N. and ADAMS, BETTY. Flight measurements of the effect of various amounts of aileron droop on the low-speed lateral-control characteristics of an observation airplane. (Natl Advisory Committee for Aeronautics Rept A-79). Aug 1943. 138 p. Price: Microfilm-$4.25 - Photostat-$14.00

Tests were made of the low-speed lateral-control characteristics of an observation airplane with ailerons and spoilers in combination, and with the spoilers disconnected and the ailerons used alone with various amounts of droop. It was found that in unstalled flight at low speeds and with flaps deflected, little or no aerodynamic benefit was derived by changing the lateral-control system from the aileron and spoiler combination to a normal aileron installation either with or without aileron droop. In stalled flight with power on and flaps down, control with ailerons alone improved as the aileron droop was decreased; with 0° aileron droop the control was better than that in the original condition in which ailerons and spoilers were used in combination. The highest maximum lift coefficients in any power condition were obtained with 15° aileron droop, the maximum aileron droop tested, followed in decreasing order by the original condition, the 10° droop condition, and the 0° droop condition.

PB L 86460. TURNER, WILLIAM N. and ADAMS, BETTY. Flight measurements of the effects of a wing leading-edge slot and other modifications on the stability, maximum lift, and high speed of an observation airplane. (Natl Advisory Committee for Aeronautics Rept A-88). Jan 1943. 107 p. Price: Microfilm-$3.50 - Photostat-$11.00.

Stability, maximum lift, and high-speed tests were made of an observation airplane fitted with Maxwell leading-edge slots. Static and dynamic longitudinal and lateral stability was, in general, satisfactory and was little affected by the slots. Maximum lift coefficients with power off were low due to early stalling at the center section. The Maxwell slots as installed reduced the maximum lift available by aggravating the center-section stall. Extending the slots all the way to the fuselage eliminated the detrimental effect, but the increase in lift over the slot-closed condition was small. Fully opening the cowl flaps eliminated a detrimental effect of opening the hoods in the landing condition. The stall warning, power off, was adequate, and with slots open was excellent. The highest lift coefficients were obtained with power on, but in this condition the stall warning was poor.

PB L 86518. UNDERWOOD, WILLIAM J. Aerodynamic characteristics for internal-balance and frise type ailerons on an NACA 6 series low-drag tip section of the wing for the XP-63 airplane. (Natl Advisory Committee for Aeronautics Rept L 6H5). Oct 1942. 29 p. Price: Microfilm-$1.50 - Photostat-$3.00

Section lift, drag, and hinge-moment coefficients are presented in this report from the results of the tests in the two-dimensional low-turbulence tunnel and the two-dimensional low-turbulence pressure tunnel. Two drawings and seventeen graphs are included.

PB L 85554. UNDERWOOD, WILLIAM J. and ABBOTT, FRANK T., JR. Test of NACA 66,2-116, a = 0.6 airfoil section fitted with pressure balanced and slotted flaps for the wing of the XP-63 airplane. (Natl Advisory Committee for Aeronautics Rept L 701). May 1942. 19 p. Price: Microfilm-$1.25-Photostat-$2.00

The data presented in this report consist of the following: lift, drag, and flap hinge-moment characteristics for the internal balanced flap; lift, drag, and flap hinge-moment characteristics for the "modified" internal balanced flap; and lift and drag characteristics for the slotted flap. The model was of 24-inch chord, built of wood with dural slot cover plates for the flap. All flaps were equipped with pressure orifices. Sixteen graphs, and two tables are included.

PB L 86519. U. S. NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS. Charts showing stability and control characteristics of airplanes in flight. (Rept L 706; MR Rept L 4I26). Dec 1944. 31 p. Price: Microfilm-$1.75 - Photostat-$4.00

During October 1944, the National Advisory Committee conducted a series of conferences with the Army, Navy, and representatives of the aircraft industry for the purpose of discussing the flight-test procedures used in measuring the stability and control characteristics of airplanes. During the conferences a series of charts were presented which portrayed

typical good and undesirable airplane characteristics as determined in flight. In general the following points were covered in connection with each chart: (a) The purpose of the test; (b) the flight technique used; (c) items recorded; and (d) evaluation and interpretation of data obtained. These charts, thirty-one in all, have been reproduced and are presented in this report.

PB L 86517. WADLIN, KENNETH L. Preliminary tank experiments with a hydrofoil on a planing-tail seaplane hull. (Natl Advisory Committee for Aeronautics Rept L-725; RB Rept L4G28). Mar 1944. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00

An unconventional afterbody called a "Planing-tail" was proposed. It appeared that a hull with this type of afterbody in conjunction with a forebody having a pointed trailing edge could be made to perform the functions of a conventional flying-boat hull and give some improvements in hydrodynamic resistance and stability characteristics. The further possibility of eliminating the chines on an afterbody of the planing-tail type by adding a hydrofoil to furnish hydrodynamic lift was suggested. Some exploratory tests were made to determine the feasibility of using a hydrofoil in this manner and the results of these are presented in this report. The tests were made in NACA tank No. 2, during July 1943. One drawing and two graphs are included.

PB L 86998. WETMORE, J. W. and others. A flight investigation of the boundary-layer characteristics and profile drag of the NACA 35-215 laminar-flow airfoil at high Reynolds numbers. (Natl Advisory Committee for Aeronautics Rept L 532) May 1941. 22 p. Price: Microfilm-$1.50 - Photostat-$3.00

Tests have been conducted in flight to determine the boundary-layer characteristics and the profile drag of the NACA 35-215 airfoil section at high Reynolds numbers. These tests were made on a test panel of 17-foot chord mounted on the left wing of a Douglas B-18 airplane just outside of the propeller slipstream. Tests were made to determine the transition points and the boundary-layer velocity profiles for various surface and power conditions over a range of airplane lift coefficients from 0.20 to 0.46 for which the range of corresponding Reynolds numbers was 30,000,000 to 20,000,000. The profile-drag coefficient of the panel was determined for the best surface condition both with power on and with the engines and propellers stopped over a range of airplane lift coefficients from 0.21 to 0.32 with a Reynolds number range of 32,000,000 to 16,000,000. In addition, the profile drag of the upper surface alone was determined for the same power and surface condition and over approximately the same range of airplane lift coefficients and Reynolds numbers.

PB L 86730. WHITE, MAURICE D. and REEDER, JOHN P. Flight investigation of modifications to improve the elevator control-force characteristics of the Curtiss SB2C-1C airplane in maneuvers. (Natl Advisory Committee for Aeronautics Rept L-719; Memo Rept L5D04a). Apr 1945. 25 p. Price: Microfilm-$1.50 - Photostat-$3.00

The modifications made to these test elevators included changes in elevator trailing-edge angle, balancing tab linkage ratio, bobweight size, and control-system mechanical advantage. The results of tests of the production elevators and of the various modifications on the test elevators are presented in this report. One photograph, two drawings, and ten graphs are included.

PB L 87817. WIEMANN. Dynamic stress tests on impeller for axial-flow compressors. (AAF T-2 Translation 2680). Jan 1948. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00

Hollow sheet-metal impeller blades are welded or soldered into slots of the U-shaped ring which forms a part of the impeller. Tests were conducted at 9000 to 20,000 rpm. Welded and soldered blade roots cracked and the ring profile was distorted at normal operating speeds. Impellers to which the blades were fastened with dowel pins withstood 18,000 rpm.

PB L 86731. WILLIAMS, WALTER C. and REEDER, JOHN P. Flight measurements of the flying qualities of an F6F-3 airplane (BUAER no. 04776). III - Stalling characteristics. (Natl Advisory Committee for Aeronautics Rept L-717; Memo Rept L5B13b). Feb 1945. 22 p. Price: Microfilm-$1.50 - Photostat-$3.00

Flight measurements were made of the flying qualities of an F6F-3 airplane. The results of measurements of the longitudinal stability and control, and lateral and directional stability and control are presented in references 1 and 2, respectively. This report presents results of tests made to determine the stalling characteristics of the subject airplane. The entire flying-qualities test program was conducted at the Langley Field Laboratory of the NACA. Three photographs, three drawings, and fourteen graphs are included.

Rockets and Jet Propulsion

PB L 81316. BARHAM and others. Notes on interrogation of Dr. Ing. Lambrich, May 17, 1945. (CIOS ARCO Rept 21A). May 1945. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

This report covers a general outline of Dr. Lambrich's career, his studies and work before and during the war. The tracing of a sketch by Dr. Lambrich of the "Kurt" rocket is included.

PB L 81314. COOLEY, R. A. Interrogation of Dr. Reinhold Lambrich on solid propellants. (CIOS ARCO Rept 19A). June 1945. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

This report covers an interrogation of Dr. Lambrich on June 3, 1945. The interrogation was not general but was directed specifically towards obtaining information directly related to solid propellants for rocket propulsion. Information obtained is presented in this report.

PB L 86208. HANSON, FREDERICK H., JR. Tests of a jet-motor air-intake duct system on a 1/4-scale stub-wing model of a pursuit-type airplane. (Natl Advisory Committee for Aeronautics Rept A-85; Memo Rept A6A09) May 1946. 68 p. Price: Microfilm-$2.50 - Photostat-$7.00

Wind-tunnel tests were made to determine the characteristics of the jet-motor air-intake duct system for a pursuit-type airplane. Modifications were made to both the external and internal design of the duct system to secure a higher critical compressibility speed and higher pressure recovery at the jet-motor air intakes. By increasing the camber of the duct lips, the critical Mach number, as estimated from measured pressure distribution, was increased from 0.48 to 0.64 for the high-speed condition. A Mach number of 0.64, however, is below the estimated critical Mach number of the airplane for high-speed flight and it does not appear possible to secure a sufficiently high critical Mach number with the ducts in their present position and operating at an inlet-velocity ratio less than 1.0. Removing the boundary-layer air at the duct entrance resulted in a pressure recovery of 0.71qc for the high-speed flight condition. Without boundary-layer removal the pressure recovery was 0.48qc for the same condition. In order to secure high pressure recovery without increasing the external drag, it will be necessary to find some means of removing the boundary layer other than by a flap on the boundary-layer exit duct, which was the system used to obtain a pressure recovery of 0.71qc. A system using the I-40 jet-motor exhaust as a jet pump to remove the boundary layer might prove sat-

isfactory and at the same time not cause an increase in the external drag of the airplane. The relative importance of pressure recovery ahead of the jet motor and external drag was evaluated for the sea-level high-speed condition. Information from jet-motor data indicated that a decrease in pressure recovery of 10 percent resulted in a change in thrust at maximum speed equivalent to an increase in drag coefficient of 0.0006. On this basis, a duct system using a streamlined bump on the boundary-layer exit duct to provide a suction pressure for boundary-layer removal was developed for which the drag increase due to the bump was more than compensated for by an increase in the pressure recovery. The flow in this system was not as desirable from the viewpoint of the minimum inlet-velocity ratio for flow stability as the system without boundary-layer control.

PB L 81310. HEATH, WILLIAM C. and others. Jumo 109.004 jet propulsion engine. (CIOS ARCO Rept 10A). May 1945. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00
The Mitteldeutsche Motoren Werke, Taucha, Germany, the Junkers Werke, Markleeburg, Germany, and the Otto Mader Werke-Junkers, Dessau, Germany, were visited in 1945 in order to obtain all information possible on the "JUMO" 109.004 jet propulsion engine. A separate report is given on each visit covering all information obtained. Five photographs are included.

PB L 88090. JOACHIM, R. Test of cabin heating system in Me 262 turbojet fighter. (AAF T-2 Translation 2812). Jan 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
Heated air is drawn from both engines at eighth compressor stage and ducted to cabin. Airflow is manually controlled by pilot. System was turned off twice in flight due to overheating and failure of pilot to adjust controls. Heating is adequate in all respects for normal aircraft. Problem of cooling air if used for pressurising cabin must be further investigated.

PB L 87818. KOECK, HEINRICH. Hydraulic adjustment of fuel-injection nozzle and adjustable thrust bullet for P 3390 A rocket engine. (AAF T-2 Translation 2732). Jan 1948. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
Servomechanism, actuator, and connecting lines are main components of hydraulic system. Hydraulic pressure of 35 atmospheres regulates fluid flow between servomechanism and actuator. Operating methods and development of hydraulic unit for control of fuel injection and adjustable jet bullet are explained.

PB L 87868. KUEMMEL. First-stage diffuser with de-icing device in BMW 003 A 2 jet engine. (AAF T-2 Translation 2602). Apr 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
Design details relate to the installation of electrical heating elements in cavities of vanes. To ensure sufficient strength, thickness of vanes was increased from 1.5 to 2.2 mm.

PB L 87853. LINDEMANN, H. High-speed tests on the He-162 jet fighter. (AAF T-2 Translation 1037; ZWB UM 1479). Feb 1947. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00
Report on first three-component tests of the airplane model He-162 run in the DVL high-speed wind tunnel. Measurements showed a very unfavorable behavior with regard to the longitudinal moment due to the location of the horizontal tail being too low.

PB L 87825. MAGNUS, WILHELM. Comparison of flight paths of missiles guided by different methods. (AAF T-2 Translation 4026; ZWB FB 10) Jan 1948. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
Problem consisted in comparing the torpedo-rocket method proposed by H. Wigge with other control methods used for guided missiles. Of special interest was the curvature of the missile flight path assuming rectilinear movement of target and constant velocity of both target and missile. It is demonstrated that the same curvature values result from the three-point alignment method as those of the torpedo-rocket method which constitutes a generalization of the former procedure.

PB L 81315. OWEN, P. R. and WHITAKER, J. H. Notes on interrogation of Dr. Reinhold Lambrich of Rheinmetall Borsig, Berlin, May 28, 1945. (CIOS ARCO Rept 20A). May 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report covers interrogation of Dr. Lambrich. The interrogation was directed specifically towards obtaining information related to Kurt I and II and the R.100 rocket. The information obtained is presented in this report. Some brief information was also obtained on "Rheintochter," a two stage guided anti-aircraft rocket; "Rheinboter," a four stage rocket having a range of 160-200 kms.; and bombs and rockets wind tunnel tests.

PB L 60673-S. SLYH, J. A. and others. Gypsum, or modifications of gypsum, as a combustion-chamber liner for special short-term rocket motors. Report, May 15 - Jun 15, 1947. (Supplement to PB 60673). (Battelle Memorial Institute Rept 27). Jun 1947. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00
Data are presented in this report covering the results of the torch-firing tests on specimens made from plaster of paris and water-soluble resins. The torch-firing test is described in the appendix.

PB L 60673-S2. SLYH, J. A. Gypsum, or modifications of gypsum, as a combustion-chamber liner for special short-term rocket motors. Report, Jun 15 - Jul 15, 1947. (Supplement to PB 60673). (Battelle Memorial Institute Rept 29). Jul 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report presents data covering the preparation of two liners, employing modified gypsum bodies, for the combustion chamber of the 25AL01000 rocket motor.

*PB L 86504. STOKES, L.H.M. and MASTERMAN, S. Interrogation of Dr. Denant, of Peenemuende West. (BIOS Final Rept 24, Item 26). Sep 1945. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00
Denant's main work so far has been on T-stoff, but he also worked on nitric acid and other systems, and, as head of the chemical section at Peenemuende West had to survey the whole field of liquid propellants for the Luftwaffe. This interrogation covers the various parts of his work.

PB L 86067. SWANSON, ROBERT S. and SCHULDENFREI, MARVIN J. Jet-boundary corrections to the downwash behind powered models in rectangular wind tunnels with numerical values for 7- by 10- foot closed wind tunnels. (Natl Advisory Committee for Aeronautics Rept L-711). Aug 1942. 33 p. Price: Microfilm-$1.75 - Photostat-$4.00
Methods are presented for determining the jet-boundary corrections to the downwash behind models in rectangular wind tunnels. The methods take into account the tunnel dimensions, the type of jet, the span loading of the model, the geometric position of the wing and of the tail in the tunnel, the dis-

placement of the wing wake, and the effect of the slipstream. A correction to the lift of the wing due to the curvature of the streamlines was determined from the downwash correction calculations and is included in the appendix. Numerical values of the downwash correction factors for 7- by 10-foot closed wind tunnels are presented in the form of graphs.

PB L 86503. TAFFS, L. G. Supersonic wind tunnels and static testing of V-2 rockets. (BIOS Final Rept 192, Items 4, 25, 27). Jul 1945. 63 p. Price: Microfilm-$2.50-Photostat-$7.00
Supersonic wind tunnels at Kochel, Gottingen, Munich, and Bruit and V-2 testing sites at Brixlegg, Passburg, Friedrichshafen, Giebelstadt, and Munsterlager were visited. Technical reports, with photographs and diagrams, are given for: (1) Kochel wind tunnel; (2) Jet aero engine testing plant at Brixlegg; (3) Messerschmidt underground factory near Oberammergau; (4) Factory for the assembly and static testing of V-2 rockets at Rudl Zipf; and (5) Gottingen wind tunnel.

PB L 86458. TURNER, L. RICHARD and WHITE, MAURICE D. Flight tests of NACA jet-propulsion exhaust stacks on the Supermarine Spitfire airplane. (Natl Advisory Committee for Aeronautics Rept L-680) Dec 1942. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00
The Supermarine Spitfire airplane was equipped with exhaust stacks designed according to the jet-propulsion exhaust-stack system developed by the NACA. An increase in the high speed of the airplane of 6 miles per hour at constant propeller thrust horsepower was obtained as compared with the airplane equipped with the Rolls Royce exhaust system. No differentiation between the effects of reduced drag and increased exhaust jet thrust was possible. The exhaust flame produced with the NACA exhaust stacks was greater than that with the Rolls Royce stacks under some conditions. Neither system is believed to be satisfactory as regards flame damping.

PB L 87823. WALTHER, ALWIN. Summary of results obtained in research on missiles. (AAF T-2 Translation 3027). Jan 1946. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00
Brief presentation of notes concerning guided missile performance and design. Oscillations, wobble, stability with and without control mechanisms, air density at high altitudes, and performance and flight path calculations are discussed as well as acceleration integration, ionization, mathematical evaluation in locating missile position and the switching-off problem. Status of research regarding these problems is given indicating conclusion or extension of individual projects.

PB L 87820. U. S. ARMY AIR FORCES. AIR MATERIEL COMMAND. Directional control of the Feuerlilie ground-to-air missile. (T-2 Translation 2895). Jan 1946. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
Experimental development of azimuth control device with guide-beam control element is described. Latter element relays signals from receiver Papagei or other possible sources, to directional control device. Pneumatic control mechanism was selected for azimuth contol. Mathematical analysis and operating description of control device are included. Theoretical investigations were undertaken for determination of optimum control constants. Model control circuit was constructed to study actual flight motion.

PB L 87851. U. S. ARMY AIR FORCES. AIR MATERIEL COMMAND. Prevention of roll of the A. IV rocket by means of a pendulum. (T-2 Translation 1016). Dec 1946. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00
It is to be investigated if a twist of the A. IV around its own longitudinal axis can be prevented by a pendulum which controls the control surfaces. Results show that it is doubtful whether the model can be sufficiently stabilized to prevent twists, since the angle between the pendulum and the body axis will be very small.

PB L 87821. WEIRICH. The BMW jet engine 109-003 A-1. (AAF T-2 Translation 3052). Jan 1946. 21 p. Price: Microfilm-$1.50 - Photostat-$3.00
Operating principles and design of the air intake, compressor, combustion chambers and tail cone assembly of the BMW 003 A-1 turbojet engine are described. Fuel, lubrication, and engine control systems are discussed. Instructions are given for ground and flight starting of the turbojet. Performance and specification data are listed. Differences between the BMW 003 A-1 and Jumo 004 B-1 turbojets are stated.

PB L 87819. ZEILINGER. Construction and operation of test stands for BMW 003 turbojet engines. (AAF T-2 Translation 2836). Jan 1946. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
Measures concerning camouflage, material economy, and terrain are discussed. Test apparatus is described as to thrust, fuel consumption, pressure, speed, and temperature measurements. Location and purpose of gages are discussed. Directives are given for installation of fuel lines, pumps, electric equipment, and procurement of supplies.

LAND TRANSPORTATION

PB L 34725-8. BAYERISCHE MOTOREN WERKE A. G. MUNICH, GERMANY. Handbook for the BMW 2 liter, 50 H.P., 6 cylinder car. Apr 1939. 63 p. Price: Microfilm-$2.00 - Photostat-$5.00
This is the owner's manual (Instruction book) for this model. In German. (PB 34725, "Passenger car and truck chassis," by Wolf, which this report and others following supplement, is abstracted in v. 2, p. 902, this Bibliography.)

PB L 34725-82. BOGE & SOHN G.M.B.H., ELTORF, GERMANY. Boge products (miscellaneous). n. d. 40 p. Price: Microfilm-$1.00 - Photostat-$3.00
This supplement consists of six parts as follows: (1) Drawing of a single acting shock absorber. (2) drawing of a double acting shock absorber, type HA 40, (3) direct acting shock absorber (vibration brake), type T-27/B, (4) leaflet describing shock absorbers, types O, A, B, C and D-35, (5) pamphlet describing a metal encased rubber bushing called "Boge Silentbloc", (6) pamphlet describing a rubber-metal Universal joint also called "Boge Silentbloc." In German.

PB L 34725-84. DAIMLER-BENZ A. G., STUTTGART-UNTERTÜRK-HEIM WERK, GAGGENAU, GERMANY. Mercedes-Benz equipment. n. d. 596 p. Price: Microfilm-$12.00 - Photostat-$40.00
This supplement contains 13 items as follows: (1) Two general assembly prints chassis L 4500S, 4600 wheelbase, (2) chassis plan view and rear axle print, (3) brake system operation print and intermediate bearing (latter print marked Carl F. W. Borgward Automobile und Motoren Werke, (4) 2 prints of front axle, (5) cross section print of chassis and print of the front axle, (6) print of rear axle and front axle, (7) print of Zahnradfabrik-Boss steering gear and print of front axle, (8) print of a double purpose brake cylinder, (9) print of an automatic hand brake adjuster, (10) handbook of Teves compressed-air-hydraulic brakes, (11) instruction book for Mercedes-Benz 4½ ton truck, types L 4500S and L 4500A, (12) instruction book for Mercedes-Benz type L 3750, and (13) catalog of Mercedes Benz 4½ ton truck, type L 4500S. In German.

PB L 34725-85. DEUTSCHE FERROT-BREMSE G.M.B.H., MANNHEIM-FRIEDRICHSFELD, GERMANY. Brakes. n. d. 30 p. Price: Microfilm-$1.00 - Photostat-$2.00
This supplement consists of: (1) Print of Duplex-brake, (2) print of wedge brake, (3) print of Servo brake, type 300 x 50S, (4) print of Servo-oil pressure brake, type 350 x 60, (5) circular on Duplex brakes, and (6) circular on Servo brakes. In German.

PB L 34725-86. FAUNWERK G.M.B.H., NUREMBURG, GERMANY. Miscellaneous prints. 1935-1943. 96 p. Price: Microfilm-$2.00 - Photostat-$7.00
This supplement contains nine prints as follows: (1) Chassis L 600D 567K, (2) garbage truck M12D, (3) 6 x 4 chassis L 900B, (4) Universal between clutch and transmission, (5) air brake system L 560D/L 600D, (6) front dead axle for SS 12D and L 600D, (7) front drive axle type HB, (8) rear axle, (9) rear axle drives. In German.

PB L 34725-87. FICHTEL & SACHS A. G., SCHWEINFURT, GERMANY. Shock absorbers. n. d. 82 p. Price: Microfilm-$2.00 - Photostat-$6.00
This supplement contains the following: (1) Circular describing "Komet" one and two-way shock absorbers, (2) instructions for installation of "Komet" one-way shock absorber, (3) instructions for installation "Komet" two-way shock absorber, (4) parts list for "Komet" one and two-way shock absorber, (5) circular on tubular direct acting shock absorber, (6 to 9) Test curves of "Komet" models 3710, 3711, 3712, (10) letter of transmittal, (11) print of shock absorber used on "Volkswagen," (12) print - 26 mm. conventional direct acting unit, (13) print - 36 mm. conventional direct acting unit, (14) print - 30 mm. single action lever type, (15) print - 35 mm. single action lever type, (16) print-30 mm. single action wishbone type, (17) print - 35 mm. single action wishbone type, (18) print - 30 mm. double action lever type, (19) print - 40 mm. double action lever type, (20) print - 48 mm. double action lever type, (21) table of data. In German.

PB L 34725-88. FULMINAWERK K. G., MANNHEIM-FRIEDRICHSFELD, GERMANY. Müns linkage, patented in Germany. Feb 1945. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00
This supplement consists of an illustration and print of the Muns steering gear, type S 3. In German.

PB L 34725-89. HANOMAG, HANNOVER, GERMANY. Hanomag products. 1938-1944. 195 p. Price: Microfilm-$4.00 - Photostat-$13.00
This supplement includes: (1) Catalog for the Hanomag 4 cylinder, 32 H.P. passenger car, (2) parts list for 32 H.P. passenger car, (3) handbook for 100 H.P. truck-tractor "Gigant", (4) print of passenger car front axle, (5) test curve of passenger car front wheel suspension, (6) catalog of the 32 H.P., 4 cylinder passenger car, (7) catalog of tractor-truck and two farm tractors, (8) circular of 20 H.P. diesel rubber tired farm tractor, (9) circular 40 H.P. farm tractor, (10) circular of 50 H.P. track-laying diesel farm tractor, (11) circular of 100 H.P. diesel truck tractor, (12) table of specifications of heat treated steels, and (13) table of specifications for case-hardened steels. In German.

PB L 34725-815. DAIMLER-BENZ A. G., STUTTGART, GERMANY. Prints and sketches. 1937-1944. 157 p. Price: Microfilm-$4.00 - Photostat-$11.00
This supplement contains the following prints: (1) W 159 chassis assembly, (2) W 159 frame detail, (3) W 153 chassis assembly, (4) W 153 rear axle, (5) W 136 front axle assembly, (6) W 150 chassis assembly, (7) W 150 front axle assembly, (8) W 150 and W 148 transmission gear ratios, (9) presentation of front axle-spring-play, (10) four rough pencil sketches of W 150 and racing car rear axles. In German.

PB L 34725-816. OPEL, ADAM, A. G., RUSSELSHEIM, GERMANY. Chassis assembly drawing. Aug 1944. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00
Captions are in German.

PB L 34725-817. SCHENCK, CARL, MASCHINENFABRIK DARMSTADT G.M.B.H., DARMSTADT, GERMANY. Catalogues. n. d. 74 p. Price: Microfilm-$2.00 - Photostat-$5.00
This supplement contains two parts: (1) a circular describing a hydraulic dynamometer and (2) a catalogue of the various testing machines manufactured by the subject firm. In German.

PB L 34725-818. SÜDWERKE G. M. B. H., BAMBERG, GERMANY. Technical specifications and prints. 1935-1945. 145 p. Price: Microfilm-$3.00 - Photostat-$10.00
This supplement contains: (1) Specifications for Krupp trucks L 30 and L 45, (2) specifications for trucks, types L 45 and LO 45, (3) print of chassis for L 45 truck, (4) print of front axle assembly, (5) print of rear axle assembly, (6) print of transmission, (7) print of crankshaft, (8) print of crankshaft and bearings, (9) print of valve gear, (10) print of clutch, (11) print of gas generator installation. In German.

PB L 34725-821. WESTINGHOUSE BREMSEN-GESELLSCHAFT M. B. H., HANNOVER, GERMANY. Catalogues and instruction chart. 1940-1944. 158 p. Price: Microfilm-$4.00 - Photostat-$11.00
This supplement contains four items: the first three are catalogues of Westinghouse brakes for the years 1940, 1942, and 1944, respectively, and a large chart for instruction on the working of brakes. Colors on this chart cannot be reproduced. In German.

PB L 86214. BUTLER, FLOYD N. Comparative test of Navy model FFN-5 crash fire-fighting and rescue truck with USAF modified class 155 crash fire-fighting truck. Final report. (Air Proving Ground, Eglin Field Fla. Project 3-47-60). Oct 1947. 57 p. Price: Microfilm-$2.25 - Photostat-$6.00
The object of these tests were to determine the relative merit of the Navy model FFN-5 crash fire-fighting and rescue truck when comparatively tested with the USAF modified crash fire-fighting truck. The tests are described and illustrated by thirty-eight photographs. Conclusions and four charts are included.

PB L 86356. BUTLER, FLOYD N. Study of aircraft crash rescue and fire fighting equipment. Final report. (Air Proving Ground, Eglin Field Fla. Project 3-45-26). Oct 1947. 23 p. Price: Microfilm-$1.50 - Photostat-$3.00
The object of these tests and investigations were to determine the most suitable technique or techniques to be employed for fighting aircraft fires and rescuing trapped personnel, and to determine the minimum amount of equipment by types and number, and the personnel required. Results of tests of standard fire-fighting extinguishing agents, and various items of crash fire-fighting and rescue equipment were considered in preparing this study. Twelve photographs showing crash trucks are included.

PB L 84367. U. S. BUREAU OF SHIPS. Bureau of Ships Internal Combustion Engine Instruction and Parts Books: Supplement #1, Revisions for the Operating and Maintenance Instruction Manual E.M.C.-NS-1, G. M. Diesel Engine, Model 16-184. (Bur. Ships, N. D. Reel D 6770 (16 mm.), Frames not numbered) Apr 1944. 61 f. Price: Microfilm-$2.50 - Enlargement print-$8.00
The above microfilm also contains service information bulletins.

PB L 82316. U. S. BUREAU OF SHIPS. Guiberson engine T-1020: War Department TM 9-1727, April 5, 1942. (Bur Ships N. D. Reel D 7085 (16 mm), Frames not numbered) Apr 1944. 250 f. Price: Microfilm-$7.00 - Enlargement print-$26.00
This is a microfilm copy of the above War Department Technical Manual, photographed by the Bureau of Ships in April 1944. Detailed construction, disassembly and assembly procedure, inspection, maintenance and repair are covered in the manual. Illustrated. Also available as PB 48246, abstracted in vol. 4, p. 11, this Bibliography.

PB L 86003. U. S. NATIONAL BUREAU OF STANDARDS. Test of motorcycle engine. (Test 374-20-46). Jun 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00
Test procedure, results, and conclusions are given for the NSU 2 cycle, 125 cubic centimeter motorcycle engine.

PB L 81738. U. S. NATIONAL BUREAU OF STANDARDS. Tests of motorcycle engine. (Test 374-20-46). Jun 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00
The engine submitted was an NSU motorcycle engine, single cylinder, 2-cycle, having a displacement of 125 cubic centimeters. The engine was coupled to a small electric dynamometer complete with all necessary test equipment. Fuel consumption was measured by a volumetric device. To provide suitable cooling, a blower was arranged so as to provide a stream of air across the cylinder at approximately 40 miles per hour. Power and fuel consumption runs were made at each of three spark advance settings over a speed range from about 1600 rpm, the lowest speed at which the engine would operate smoothly, to about 5200 rpm. Results and conclusions are given.

Rept P-47

PB L 81886. U. S. STRATEGIC BOMBING SURVEY. MILITARY SUPPLIES DIVISION. Japanese motor vehicle industry. Nov 1946. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00
A comprehensive summary is followed by discussion of: (a) prewar development, (b) stocks of motor vehicles and requirements, (c) plans and production, (d) bottlenecks, and (e) bomb damage. Appended is a bibliography of reports resulting from the Survey's studies of the European and Pacific wars.

PB L 86630. U. S. WAR DEPARTMENT. All vehicles using Continental R-975-C1 and R975-C4 engines: Carburetor identification. (Tech Bulletin Ord 235). Dec 1944. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86562. U. S. WAR DEPARTMENT. Car, armored, light, M8; car, armored, utility, M20: Anchoring fan belt pulley on generator shaft. (Tech Bulletin 9-1743-FE1). Jan 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86553. U. S. WAR DEPARTMENT. Car, armored, light, M8, and car, armored, utility, M20: Periodic inspection of flywheel bell housing. (Tech Bulletin 9-743-7). Sep 1944. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86584. U. S. WAR DEPARTMENT. Car, armored, light, M8 (T22E2) (Ford); car, armored, utility, M20: Replacement of front springs. (Tech Bulletin 9-743-5). May 1944. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81487. U. S. WAR DEPARTMENT. Car, railway, hospital unit 56-4-inch gage, 12 wheel (USA 89300 to 89399 and 89400 to 89499). (Tech Manual 55-1254). Dec 1945. 206 p. Price: Microfilm-$6.00 - Photostat-$21.00

PB L 86579. U. S. WAR DEPARTMENT. Carrier, cargo, M29: Conversion of 15-inch type track suspension to 20-inch type track suspension. (Tech Bulletin 9-772-FE3). Jan 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86626. U. S. WAR DEPARTMENT. Carriers, cargo, M28, M29, and M29C: Identification of connecting rods. (Tech Bulletin Ord 201). Sep 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86578. U. S. WAR DEPARTMENT. Carrier, cargo, M29 and M29C: Installation of lubricating fittings on bogie wheel support, track idler and drive wheel hubs. (Tech Bulletin 9-772-FE4). Mar 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86577. U. S. WAR DEPARTMENT. Carrier, cargo, M29: Replacement of 12-volt battery with two 6-volt batteries. (Tech Bulletin 9-772-FE5). May 1945. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86627. U. S. WAR DEPARTMENT. Continental R975-C1 and R975-C4 engines: Magneto identification. (Tech Bulletin ORD 210). Oct 1944. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86602. U. S. WAR DEPARTMENT. Conversion of 1934 and 1935 Autolite, Dodge starting motors, for use on 1939, 1940 and 1941 Dodge 1½ ton trucks. (Tech Bulletin 9-2830-83). Aug 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86598. U. S. WAR DEPARTMENT. Conversion of Dodge clutch housings 915514, 589999, 592386, 579402 and 589282 to fit any chassis using Dodge model, T112, T202, T207, T211 and T215, engines. (Tech Bulletin 9-2830-56). May 1944. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86591. U. S. WAR DEPARTMENT. Conversion of 1934 through 1939 Dodge 1½-ton transmission to 1941 and 1942 (models T202, T207, T211, and T215) Dodge ½-ton transmissions. (Tech Bulletin 9-2830-32). Jan 1944. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86652. U. S. WAR DEPARTMENT. Conversion of T214 and T223 Dodge engine assemblies and P14 Plymouth engine assembly for use in early Dodge military vehicles and Plymouth passenger cars. (Tech Bulletin Ord PE 7). Jun 1944. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86590. U. S. WAR DEPARTMENT. Conversion of GMC T16 (1938) and AFKX (1940) four speed truck transmission for use as 1941 and 1942 Chevrolet 1½ ton truck transmission. (Tech Bulletin 9-2830-21). Jan 1944. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86599. U. S. WAR DEPARTMENT. Conversion of GMC 2½ ton 6x6 truck transfer case inner bearing retainer, 3659898 to new type retainer 591377. (Tech Bulletin 9-2830-63). May 1944. 3 p. Price: Microfilm-$1.00-Photostat-$1.00

PB L 86600. U. S. WAR DEPARTMENT. Conversion of ¼-ton 4x4, amphibian truck (Ford GPA), front and rear axles for use on ¼ ton, 4x4, trucks (Ford GPW). (Tech Bulletin 9-2830-69). Oct 1944. 8 p. Price: Microfilm-$1.00-Photostat-$1.00

PB L 86634. U. S. WAR DEPARTMENT. Engine, Continental R975-C1 and R975-C4: Change in piston skirt diameter. (Tech Bulletin Ord 276). Mar 1945. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86646. U. S. WAR DEPARTMENT. Engine, Continental R975-C4: Correction of valve timing data on engine name plate. (Tech Bulletin Ord ME-33). Mar 1945. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86567. U. S. WAR DEPARTMENT. Engine, Continental model W 670-9A: New chrome plated piston ring and piston ring combinations. (Tech Bulletin 9-1726-7). 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86633. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Autocar model 358 engine. (Tech Bulletin Ord 268). Mar 1945. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86653. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Autocar model NB-447 engine. (Tech Bulletin Ord 299). May 1945. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86657. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Dodge model T118 engine. (Tech Bulletin Ord 291). Apr 1945. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86635. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Dodge T202 engine. (Tech Bulletin Ord 277). Mar 1945. 16 p. Price: Microfilm-$1.25-Photostat-$2.00

PB L 86658. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Dodge T203 engine. (Tech Bulletin Ord 290). Apr 1945. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86656. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Dodge T-211 (to engine serial no. 42001), T-207, and T-112 engines. (Tech Bulletin Ord 293). Apr 1945. 19 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86666. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Dodge T214 and T223 engines. (Tech Bulletin 9-1808A-1). Feb 1945. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86559. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for GMC series 71 model 6046 twin Diesel engine. (Tech Bulletin 9-1750C-7). Mar 1945. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86659. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for GMC model "256" engine. (Tech Bulletin Ord 289). Apr 1945. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86550. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for GMC model "270" engine. (Tech Bulletin 9-1802A-1). Mar 1945. 17 p. Price: Microfilm-$1.25-Photostat-$2.00

PB L 86663. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for the Hercules RXB, RXC, HXD, HXC, and JXD engines. (Tech Bulletin 9-1832A-2). Feb 1945. 67 p. Price: Microfilm-$2.50 - Photostat-$7.00

PB L 86569. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Lycoming model O-435-T engine. (Tech Bulletin 9-1720A-1). Apr 1945. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86654. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Packard model 2001-A engine. (Tech Bulletin Ord 298). May 1945. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86554. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Studebaker model 6-170 engine. (Tech Bulletin 9-1772A-1). Mar 1945. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86549. U. S. WAR DEPARTMENT. Fits, tolerances, and wear limits for Willys-Overland MB engine. (Tech Bulletin 9-1803A-2). Feb 1945. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00

PATENTS

CHEMICALS AND ALLIED PRODUCTS

PB L 73604. REICHSPATENTAMT, BERLIN. German patent applications concerned with plastics. (FIAT Microfilm Reel C 194, Frames 9036-10002) 1938-1945. 936 f.
Price: Microfilm-$6.00 - Enlargement print-$94.00
This reel, prepared by FIAT investigators in Germany contains 215 applications. Individual items are listed below and will be available as enlargement prints. The entire reel may be purchased as a microfilm for $6.00. Please include PB and frame numbers when ordering individual items. In German.

Frames	Title	Price
9036-9037 PB L 73604	SEMPERIT GUMMIWERKE A.G., WIEN. Method to increase the rubber affinity of fabrics. Ger. patent application S 156 036 dated Jun 10, 1943. In German.	$1.50
9038-9042 PB L 73604	SIEMENS & HALSKE A.G., BERLIN-SIEMENSSTADT. Production of extensively form-proof plastic foils stretched to great length. Ger. patent application S 158 380 IVa/39b dated Dec 31, 1943. In German.	1.50
9043-9045 PB L 73604	SEMPERIT GUMMIWERKE A.G., WIEN. Method for the repair of rubber goods containing fabric layers. Ger. patent application S 158 350 IVc/39b dated Dec 29, 1943. In German.	1.50
9046-9047 PB L 73604	SEMPERIT GUMMIWERKE A.G., WIEN. Abrasives. Ger. patent application S 157 858 IVc/39b 22/01 dated Oct 29, 1943. In German.	1.50
9048-9051 PB L 73604	SIEMENS-SCHUCKERT-WERKE A.G., BERLIN-SIEMENSSTADT. Method to decolorize cellulose derivates suitable for the production of foils, especially film foils. Ger. patent application S 157 933 IVc/39b 12/01 dated Nov 4, 1943. In German.	1.50
9052-9054 PB L 73604	SIEMENS-SCHUCKERT-WERKE A.G., BERLIN-SIEMENSSTADT. Preparation of pressable or sprayable mixtures from highly molecular polyamides and powdery ceramic substances. Ger. patent application S 159 498 IVa/39b dated Apr 28, 1944. In German.	1.50
9055-9061 PB L 73604	METALLGESELLSCHAFT A.G., FRANKFURT AM MAIN. Preparation of substances formed from fibers and binding agents. Ger. patent application M 147 788 dated May 11, 1940. In German.	1.50
9062-9064 PB L 73604	I.G. FARBEN, FFM-HÖCHST. Production of plastics capable of being hardened. Ger. patent application I 64 769 IVc/39b, 22 dated Jul 17, 1940. In German.	1.50
9065-9070 PB L 73604	I.G. FARBEN, LUDWIGSHAFEN/RH. Method to thicken liquid organic substances. Ger. patent application I 67 432 dated Jul 13, 1940. In German.	1.50
9071-9073 PB L 73604	I.G. FARBEN, FRANKFURT AM MAIN. Solvents, softeners, and gelatinizing agents for polyvinyl compounds. Ger. patent application I 67 811 dated Sep 9, 1940. In German. Addition to patent application J 66 741 IVc/39b.	1.50
9074-9075 PB L 73604	I.G. FARBEN, FFM-HÖCHST. Pressed articles from plastics and a method for their production. Ger. patent application I 67 957 dated Oct 1, 1940. In German. Addition to patent application J 67 547 IVd/12s.	1.50
9076-9078 PB L 73604	I.G. FARBEN, LUDWIGSHAFEN/RH. Plastic substances. Ger. patent application I 68 001 dated Oct 9, 1940. In German.	1.50
9079-9084 PB L 73604	I.G. FARBEN, LEVERKUSEN/RH. Preparation of rubber conversion products. Ger. patent application I 68 196 dated Nov 8, 1940. In German.	1.50
9085-9091 PB L 73604	I.G. FARBEN, LUDWIGSHAFEN/RH. Vulcanizable mixtures from organic film-forming substances. Ger. patent application I 58 271 dated Jun 15, 1937. In German.	1.50
9092-9093 PB L 73604	Application of oxidation products containing chlorine as softening agents. Ger. patent application M 157 858 IVc/39b 5/07 dated Jun 10, 1943. In German.	1.50
9094-9097 PB L 73604	METZELER-GUMMIWERKE A.G., MUNICH. Preparation of solutions from insoluble or difficultly soluble co-polymerization products, in the preparation of which 1,3 butadiene is used as main component. Ger. patent application M 156 255 IVc/39b dated Dec 18, 1942. In German.	1.50
9098-9101 PB L 73604	METALLGESELLSCHAFT A.G., FRANKFURT AM MAIN. Plasticiser or softener for synthetic rubber and plastics. Ger. patent application M 155 885 IVc/39b dated Nov 11, 1942. In German.	1.50
9102-9103 PB L 73604	Application of chlorinated paraffin hydrocarbons. Ger. patent application M 155 977 dated Nov 18, 1942. In German.	1.50
9104-9106 PB L 73604	I.G. FARBEN A.G., LUDWIGSHAFEN/RH. Rubber solution. Ger. patent application dated Feb 3, 1945. In German.	1.50
9107-9109 PB L 73604	I.G. FARBEN A.G., LUDWIGSHAFEN/RH. Preparation of solutions from solid polyethylene and polyisobutylene. Ger. patent application I 70 770 dated Oct 28, 1941. In German.	1.50
9110-9117 PB L 73604	I.G. FARBEN, FFM-HÖCHST. Method for stabilising plastics. Ger. patent application I 70 783 dated Nov 3, 1941. In German.	1.50
9118-9121 PB L 73604	I.G. FARBEN, LUDWIGSHAFEN/RH. Emulsion-polymerisation. Ger. patent application I 63 984 dated Mar 4, 1939. In German.	1.50
9122-9127 PB L 73604	I.G. FARBEN, LEVERKUSEN/RH. Method to dissolve synthetic rubber-like products. Ger. patent application I 71 353 dated Jan 16, 1942. In German.	1.50

9128-9134 PB L 73604 — I.G. FARBEN A.G., LUDWIGSHAFEN/RH. Substances containing polyisobutylene. Ger. patent application dated May 19, 1939. In German. 1.50

9135-9141 PB L 73604 — I.G. FARBEN, FFM-HÖCHST. Method for the preparation of polymerization products. Ger. patent application I 58 127, n.d. In German. 1.50
Addition to patent application J 57 873 IVc/39b.

9142-9144 PB L 73604 — I.G. FARBEN, LUDWIGSHAFEN/RH. Softeners or fillers for plastics. Ger. patent application dated Dec 20, 1942. In German. 1.50

9145-9147 PB L 73604 — SCHERING A.G., BERLIN. Production of formed articles from primary cellulose esters. Ger. patent application Sch 125 836 dated Oct 2, 1942. In German. 1.50

9148-9151 PB L 73604 — NOWACK, AUGUST, A.G., BAUTZEN/SA. Method for the production of wood pulp impregnated with synthetic resins for molding purposes. Ger. patent application N 46 427 dated Feb 10, 1943. Inventor: Hessen, Richard. In German. 1.50
Addition to patent application No. N 46233 IVc/39b.

9152-9158 PB L 73604 — NOWACK, AUGUST, A.G., BAUTZEN. Preparation of pressed masses containing synthetic resins capable of being hardened. Ger. patent application N 46 458 dated Feb 17, 1943. Inventor: Hessen, Richard. In German. 1.50

9159-9160 PB L 73604 — I.G. FARBEN, FFM-HÖCHST. Method for the production of material for weights. Ger. patent application dated Mar 2, 1945. In German. 1.50
Addition to patent application I 78 687 IVc/39b.

9161-9165 PB L 73604 — DEUTSCHE GOLD- UND SILBER-SCHEIDEANSTALT VORMALS ROESSLER, FRANKFURT AM MAIN. Method for the preparation of highly concentrated nitrocellulose dispersions by using casein as dispersing agent. Ger. patent application dated Mar 7, 1945. In German. 1.50

9166-9167 PB L 73604 — SEMPERIT GUMMIWERKE A.G., WIEN. Agents protecting storing properties of synthetic rubber. Ger. patent application S 158 854 IVc/39b 4/01 dated Feb 21, 1944. In German. 1.50

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